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ABSTRACT

The study reported in this document examined how special education administrators and staff in 100 school districts were involved in the adoption of new educational technology. The sample was drawn from the known population list of operating school districts from the Common Core of Data of the National Center for Educational Statistics. Selection procedures were designed to ensure coverage for the widest distribution of the population elements in the sample. Two survey forms were developed, one for special education administrators and the other for computer coordinators and special education teachers. Respondents included 100 administrators, 93 special education teachers, and 89 computer coordinators. Findings showed that administrative involvement in the decision making processes related to computers is high. Involvement in committee processes was reported by over half of the administrators; about two-thirds reported working with other administrators at the district level and half work with other administrators at the building level. One-third of teachers reported regular interaction between administrators and teachers. Teachers in special education programs are sharing computer resources with regular education through informal mechanisms. Technical assistance for computers is reported to be available by about 90% of administrators and teachers. Two-thirds of the administrators reported both purchase of computer technology for administrative purposes and regular use for professional purposes. Forty percent of teachers reported purchase of hardware or software for administrative applications. The report concludes with plans for Phase II of the study, a list of 19 references, and copies of the survey instruments. (JDD)

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FINAL REPORT – PHASE I

STUDIES OF SPECIAL EDUCATION ADMINISTRATIVE INVOLVEMENT IN COMPUTER IMPLEMENTATION

FOR
GRANT #H180C80006

MACRO
macro systems inc.

EC 233181

FINAL REPORT - PHASE I

STUDIES OF SPECIAL EDUCATION ADMINISTRATIVE INVOLVEMENT IN COMPUTER IMPLEMENTATION

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FINAL REPORT - PHASE I

STUDIES OF SPECIAL EDUCATION ADMINISTRATIVE INVOLVEMENT IN COMPUTER IMPLEMENTATION

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Chapter 1 - Introduction

Background

In recent years educators and researchers have identified new technologies which have the potential to improve instruction for special education students. The computer has particular appeal to special educators due to its capability to deliver individualized instruction, to increase learning rates and to improve student performance (Okolo, Rieth, Polsgrove, Goh, Yerkes, & Bahr, 1987; Robertson, Ladewig, Strickland, & Bosching, 1987).

Considerable research has been done in the past 10 years on the effectiveness of computers, particularly computer-assisted instruction (CAI), in providing instruction to special education students. A large number of studies have compared computer-based and traditional instruction methods in special education and concluded that CAI can improve student performance and increase students' rates of learning and increase levels of motivation (Beach & Vacca, 1985; Ellis & Saborine, 1986; Thormann, Gersten, Moore, & Morvant, 1986; Cosden, Gerber, Semmel, Goldman, & Semmel, 1987; Rieth, Bahr, Polsgrove, Okolo, & Eckert, 1987). A recent metaanalysis by Roblyer, Castine, and King (1988) reports that computer assisted instruction can be valuable across a wide range of subjects and with students at all achievement levels.

Furthermore, previous studies have indicated that the acquisition of computers by local school districts is increasing. The Office of Technology Assessment (1988) reported that between 1981 and 1987, the percentage of American schools with at least one computer for instructional use increased from 18 percent to 95 percent. Although the number currently available still equates to only 1 computer for every 30 students, and the computer is not yet a "central element of instruction" (Office of Technology Assessment, 1988, p. 6) in either special or regular education, the amount of equipment available continues to increase.

Some studies (e.g. Rieth, Fuchs, Bahr, Kinzer, & Okolo, 1988) have painted a less than ideal picture of computer use in special education despite the fact that special educators have been at the forefront of those advocating the use of computers in the classroom. Some research focused on the use of computer-assisted instruction indicates that special educators have done more to use computers in their instructional programs than general educators

(Becker, 1986). However, Rieth et al. (1988) report that levels of CAI use in special education classrooms have actually decreased in the past few years. Furthermore, researchers working on OSEP-sponsored multiyear studies on the integration of technology into the instruction of handicapped students, have also reported low levels of CAI usage and failure of local educators to link the CAI with the curriculum (Hummel & Steeve, 1988; Zorfass & Russell, 1988; Hanley, 1988).

Overall, considerable research has been conducted regarding effectiveness of computers in instruction and current levels of use. Far less has been done to determine the extent to which administrative involvement and other organizational conditions affect the use of computers in special education. Reliable information and descriptions of administrator involvement, in particular, have not been available. However, those studies that have been carried out tend to indicate that special education administrators do not always have a voice in the decisions which affect the use of computers (Goldman, Semmel, Cosden, Gerber, & Semmel, 1987). This study seeks to partially fill that void by examining how special education administrators and staff are involved in the adoption of new educational technology in their school districts.

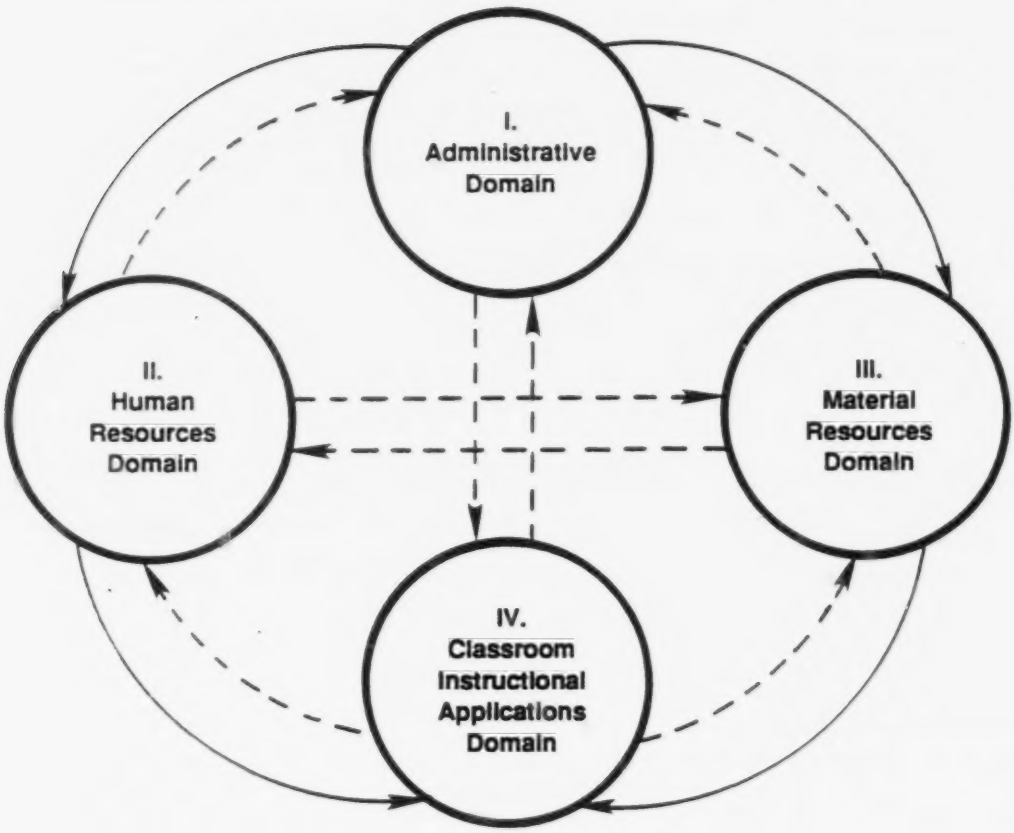
Underlying Assumptions - The Macro Model

Hanley concluded in 1983 that "special education administrators may have to take a more active role in the planning and management of microcomputer systems to encourage more specialized use of this technology in programs for handicapped students." Since that time, following Hanley's lead, Macro has developed a conceptual model that describes the influence and direction of organizational processes that affect the implementation of computer technology in school districts (see Exhibit 1). The model reflects theory (e.g., Hall & Loucks, 1978; Havelock, 1973) on the process of technology innovation in schools, as well as more recent thinking on the system dynamics of change in the schools (e.g., Barr & Dreeben, 1983; Jacobsen & Bronson, 1987). The model graphically represents the manner in which administrative actions directly affect the availability of material and human resources, and ultimately influence the use of computer technology in classrooms.

Thus, this study began with an assumption that more involvement by special education administrators in the decision making related to technology will enable special education programs to use educational technologies to their fullest potential for the benefit of handicapped students. Macro believes that in order to gain the maximum benefits from the use of technology it is necessary for administrators, educators and policymakers to take the next step: to organize and structure technology use as an integral component of instruction.

In addition, we believe that while successful, but isolated, experiences of computer using educators highlight the potential for technology in the classroom, it is now vital that the lessons from these successful experiments are transferred to the systems of instruction within school districts. Studying how school districts are being successful in the integration of computers in their curriculum can assist others in that effort.

Exhibit 1
Conceptual Model of the Processes in Technology Innovation and Integration



Solid line indicates primary flow of influence.
Dotted line indicates secondary flow of influence.

Funding Source

This view that dissemination of successful practices is critical was shared by the U.S. Department of Education Office of Special Education Programs which supported this study through its Research on Technology - Administration and Management grant program. A renewal of the grant for a second year will enable the project to continue its work in 1989-90 with Phase II, an in-depth study of several school districts which have been particularly successful in promoting the use of technology in their special education programs.

Purpose

The overall purpose of this study is to describe the level of involvement by special educators, most particularly special education administrators, in technology implementation. Part of this overall purpose was accomplished in Phase I through the use of a scientific survey. The information gathered during Phase I will be amplified in Phase II through the conduct of case studies in districts which have been notably successful in their efforts to integrate technology into the instructional programs of special education students. It is hoped that this knowledge, through the dissemination of materials resulting from Phase II of this project, will assist special education administrators and others as they organize and structure their use of technology as an integral component of the instruction of handicapped students.

Phase I Objectives

The objectives to be accomplished during Phase I of this project were:

- To select a representative sample of 100 school districts in the United States for a computer-assisted telephone interview survey

- To design close-ended informational protocols for the survey for use in interviewing special education administrators, computer coordinators or specialists familiar with special education, and special education teachers currently using computers for instruction.

- To obtain generalizable information on the patterns of special education administrative involvement in implementing computer applications.

- To analyze the resulting data

    - To provide representative, descriptive information on the status of special education administrative involvement in the implementation of computer applications and

    - To identify 3 - 5 schools districts for the focused case studies to model effective practices in Phase II.

- To disseminate information gathered during Phase I through two documents:

    - The final report, intended for researchers in the field, and

    - An abbreviated version of the report, intended for administrators and policymakers

Chapter 2 - Method

Sample Selection

The objective was to select a representative sample of school districts in the United States for the survey. The sampling frame included all school districts in the 50 states and the District of Columbia that operate public instructional programs, from which 100 local educational agencies were selected. The unit of analysis was the school district.

The Common Core of Data was supplied to Macro Systems by the National Center for Educational Statistics of the U.S. Department of Education. The survey used to gather this data is conducted annually and gathers state and federal codes, agency name, address, and telephone number, county name and code, agency type, student counts, graduates, and other codes for selected characteristics for each agency.

The sample was drawn from the known population list of operating school districts from the Common Core of Data. The sample selection procedures were designed to insure coverage for the widest distribution of the population elements in the sample. The sample of 100 agencies was drawn as follows.

- Records were retained for agencies which were (1) a local educational agency, or (2) a local educational agency in a supervisory union. These two types of agencies comprised 91 percent of all agencies and included 99 percent of all students and special education students that were reported.

- The dataset was ordered systematically by agency size, largest to smallest.

- The dataset was then subdivided into three strata, each with an equal number of students:
    - The smallest agencies in population (33 percent of the total students - 13476 agencies)
    - The next larger in size (33 percent of the total students - 1795 agencies) and
    - The largest (34 percent of the total students - 304 agencies).
- Each stratum was then sorted by agency type and geographic region so that agency members of the sample would be in similar proportions to the total population. Within each stratum each agency had the same probability of selection as any other. In other words, within each size stratum (small, medium or large) a district had the same chance of being selected as every other district in the group.
- The sample was drawn from the ordered data set, 33 agencies from the smallest group in size, 33 from the medium size group, and 34 from the largest.
- A systematic selection procedure was used to sample schools from the list. After an initial local educational agency was picked randomly from the top part of the list, then every "nth" LEA was selected.
- The record immediately following each selected record was placed in a group to serve as replacements for the sample.

Instrument Development

A set of statements about the relationship between administrator and staff actions in each area and the effect on computer use was developed. These statements were used to generate the actual survey questions. The initial list was reduced so that only those questions which could provide concrete, objective information were retained. The question format was designed to facilitate the flow of the interviews and the interviewers' coding of responses.

It was assumed that individuals in different roles (special education director, computer coordinator, or special education teacher) in the district would be better able to answer some questions than others. For example, the special education teacher and computer coordinator would have the best information about the classroom applications of computers, while the special education director would be best able to provide answers to questions about overall planning in the district. Therefore, two forms were developed, one for special education administrators (Survey 1), and one for computer coordinators and special education teachers (Survey 2).

The surveys were designed to provide a picture of the extensiveness of use of computing in a number of ways, including: types of software in use; subjects and grade levels in which computer applications were used; the ways in which teachers and administrators used computers; and estimates of levels of use. Together these measures were to reflect the breadth of computer use within a district. The complete surveys are presented in Appendix A.

The Interview Process

The development of a systematic procedure for conducting the interviews was an equally important component of data collection. The following steps comprised the initial interview process:

- An introductory letter was sent to the superintendent of each district to explain the study and invite his or her participation. The district's address was obtained from the NCES data set.

- A phone call was made to the superintendent of each district to answer any questions he or she might have and obtain the name, address, and phone number of the special education director.

- An introductory letter was sent to the director.

- A phone call was made to the director to confirm participation and set a time for the interview.

- An outline of the survey was mailed to the director.

- The interview was conducted with the director. During the interview, the name, address and phone number of a computer coordinator obtained.

- The process described above was repeated with the computer coordinator. During the interview, the name, address and phone number of a special education teacher was obtained.

- The first six steps above were repeated with the special education teacher.

Pretest of Survey Instrument and Interview Procedures

Five districts served as the pretest sites for the survey instrument and the interview procedure. This was an opportunity to quickly resolve any problems with the original plan for the survey. No changes were made to the questions in the survey instrument as a result of the pretest. However, the pretest resulted in several changes to the interview procedure.

The contact process as outlined above proved to be time-consuming and contained unnecessary steps which complicated participation. Specifically, the following difficulties were encountered:

- The superintendent did not always recall receiving the introductory letter describing the project, or may not have received it. The superintendents in the pretest sometimes did not want to commit the special education director to participating without his or her consent. Generally the response was "It's fine with me if she wants to do the interview" or "Don't ask me, ask him."

- After obtaining the director's name from the superintendent, a letter was sent to the director. This resulted in an additional delay to allow sufficient time for the director to receive the letter. The director was then telephoned, but again did not always recall the letter or had not received it. The procedure called for the director to then receive an outline of the questions, if he or she agreed to participate. However, each director asked to go ahead with the interview at the time of the first phone call and did not want to wait for the outline.

- After the interview the director was asked the name of a computer coordinator and that person was to name the teacher. However, the directors did not want someone else deciding who was to be interviewed. They generally felt that they were in the best position to identify a teacher who was using computers. Since the directors' objection was reasonable, the procedure was modified and the director was asked to name both individuals to be interviewed. (After the procedure was changed, a director would occasionally tell the interviewer to ask the coordinator for the name of a teacher. This usually occurred in larger districts where the administrator might not be familiar with classroom uses.)

Based on the results of the pretest, the interview procedure was revised as follows:

- The special education director was called, given a brief overview of the survey, and asked to participate in the study. Since the directors had not received the introductory letter, this occasionally caused directors to be reluctant to participate. (In retrospect the directors should have received the introductory letter at the time this change was made). Occasionally, directors mentioned receiving our letter, forwarded by the superintendent's office.

- The director was asked to name the computer coordinator and special education teacher to be interviewed. These two staff members were then interviewed, usually having received an explanation from the director prior to the call. On two or three occasions a director asked to see an outline prior to an interview. In these cases one was sent and interviews completed after an appropriate time.

The interviews

Interviews with Special Education Directors

The goal was to make the interviewees comfortable and at ease during the phone call. The approach was conversational and did not follow a set "script." The interviewer would begin by explaining the study and answering any questions the director might have. The explanation served to give the administrator an overview of what information was being sought. The director might then begin talking about the district in a general way and the interviewer would prompt him or her for the specific information required. Otherwise, the interviewer might ask a general question about the director's involvement with a particular area and then prompt for specific information when necessary. The questions were not repeated verbatim from the survey but rather were paraphrased.

The interviewer had a structured survey form on which to record the answers, but the interview itself was a discussion about the district's computer program. The survey form assured that all information was complete, but the goal was to collect information without a structured question/answer format. As the interview progressed the interviewer checked the appropriate responses on the survey form or wrote down answers as needed. At the conclusion of the interview, the interviewer had a completed survey form which was then entered into the computer. (Interviews required ten to twenty minutes to complete. Calls began in March and were completed in mid-June 1989.)

The value of this approach was often expressed in the positive comments expressed by the interviewees. The initial reluctance may have come from experiences where all the interviewee could offer was a "yes" or "no" to a list of questions. Talking about the district's use of computers seemed to give the directors a sense that they were really contributing. Participants particularly liked the fact that they did most of the talking and the researcher listened.

Interviews with Special Education Teachers and Computer Coordinators

After the interview, the director was asked to identify a computer coordinator or specialist familiar with computer applications in the special education program and a computer using special education teacher. The coordinator was contacted and an interview time arranged. Interviews were conducted in the same manner as that described for the director. While the plan was to speak to three individuals in each district, this was not always possible. In small districts, there was not always a computer-using special education teacher and/or a computer specialist familiar with special education.

Staff members were extremely cooperative and helpful in completing the interviews. Their generous gift of time is appreciated. The only difficulties arose in reaching people at a convenient time. Occasionally having phone calls returned was a problem when schools had a policy against making long distance phone calls. This was resolved when the interviewer urged participants to return calls "collect." (In retrospect a toll-free number would have facilitated the process and might have reduced the "refusals" that did not respond to phone messages.)

Problems Encountered During Interviews

Every effort was made to speak with the special education director and to ask that person to participate in the project. Unfortunately, this was not always possible. Special education directors are very busy people whose calls are closely screened. The interviewer explained the purpose of the call and what was required of the special education director when leaving a message. When the interviewer was not able to reach the special education director after a reasonable amount of time, a non-response to several phone messages was interpreted as a refusal and an alternate district was contacted.

Occasionally directors would convey their refusal directly to the interviewer. The reasons stated were a lack of time or interest and sometimes just "no." A few directors confused our study with another survey they received in the mail and were asked to complete. A quick explanation about the nature of our study was able to clear up the confusion.

On other occasions, after completing the interview, the special education director refused to name a teacher or a coordinator. The explanation for this refusal was that it was against district policy to give out names or that they did not want to commit someone else to doing the interview. Follow-up calls and letters were used in an effort to gain cooperation with some success.

One hundred districts were originally contacted. Seventy-two of the original sample group agreed to complete interviews. Twenty-eight matched alternates were contacted and interviews were completed. The record immediately following the record for the sample served as the replacement. If a replacement district refused to participate then the record immediately following it served as replacement.

As the survey progressed, there were some questions the school staff members felt they did not have sufficient information to answer. For instance, one question asks in which grades computers are used. Some staff were familiar with the whole district and were able to answer, but others were not. Staff were asked to report what they knew. In other words, a partial answer was considered more valuable than "don't know." Staff members had a similar difficulty with the question which asked about the number of computers in the district. Some

could estimate, some could report the number available in the building, and others had no idea. In retrospect, this is a difficult question, and this information may not be accurate.

One change to the survey instrument was made after the interviews began. An additional question was inserted concerning the number of training activities that teachers or coordinators may have led. The survey originally asked only how many activities they attended. Although this late insertion caused a large number of responses to be "missing," the additional information was considered to be of sufficient interest to warrant working with a reduced number of cases.

Some caution is also required with the report by administrators of the percentage of special education teachers who use computers in the district. In some small districts the special education staff consisted of one person. If he or she used computers then the percentage would be 100 percent. In larger districts, administrators often cautioned that the estimate was really a guess. Some reported that 100 percent of the teachers could use computers for instruction if they wanted to, but they did not know how many actually used them on a daily basis.

Data Analysis

This study planned to accomplish the following three purposes:

- Provide descriptive statistics on a variety of variables believed to be related to technology use in special education in general and administrative involvement in particular.

- Conduct exploratory analyses to determine differences based upon district size and correlation analyses to examine potential relationships between district factors believed to impact on the use of technology in special education.

- Select three to five school districts for the case studies whose administrative patterns suggest relatively greater and more successful practices based on the constructs developed.

During the course of the analysis, it became apparent that some modifications to the original plan would be necessary. However, the essential intent of each type of analysis was retained in the modified form.

Descriptive Statistics

Weighted frequencies and corresponding percentages were calculated for all questionnaire items. Weights were computed so that analysis of the combined responses within the three size strata (large, medium, and small schools) could be combined to provide an overall national profile of the results.

The weights computed were the inverse of the probability of selection. If there were N LEAs in a stratum and n LEAs were selected, then the probability of selection of an LEA was just n/N. The weight was then computed as N/n. There was no adjustment made for nonresponse by special education directors, computer coordinators, or teachers.

Every LEA in a given size group has the same weight, and so the results within group are the same whether or not weighting is considered. In the combined analyses, the small LEA stratum, when weighted, amounts to about 85 percent of all LEAs. Medium-sized LEAs account for most of the rest of the LEA universe. As a result, the combined estimates, which give every LEA equal weight regardless of student population are heavily influenced by the small LEAs. The practices and opinions of the 200-300 large LEAs that have one-third of the student population hardly influence the combined estimates at all.

An alternative weighting could have analyzed results from the perspective of the student, such as "How are software acquisitions made in the school attended by the average student?" Since a third of all students attend large schools, the large schools would have been weighted much more heavily. We did not pursue this line because we felt that the proper interpretation of this sort of weighting was not intuitive.

A preliminary analysis of the data by school district size indicated that, because of the small sample sizes, there were likely to be no statistically significant differences among small, medium, and large districts. In fact, a difference of approximately 25 percent would have been required in order for there to have been a statistically significant difference at the .10 significance level given the sample size. However, where a notable, though not statistically significant, result was observed, this information is presented, along with information about that variable overall, in the findings presented in the next chapter. For all of the estimates presented, the standard error was no more than 10 percent with a range of 6 to 10 percent.

Exploratory Analyses

As noted above, no statistically significant differences related to district size were found. Based on the results of this exploratory work, it appeared that correlational analysis was the most satisfactory given the data and the intent of the study. Eight constructs related to administrative and staff involvement in uses with technology were developed for the purpose of conducting these correlation analyses. For each construct, a variable was created from a set of individual survey items that, when taken together, were considered to be an appropriate indicator of some involvement with technology.

Selection of Case Study Sites

An examination of the correlation analysis conducted and described above appeared to provide the best source of information for identifying potential local education agencies for the Phase II case studies. The actual selection was based on the relationship between administrative involvement in committees and level of use of instructional applications by special education students. The selection was constrained by budgetary considerations which limited our choice of sites to six states.

DESCRIPTIVE STATISTICS

Survey Respondents

As described in the previous chapter, the sample consisted of special education administrators, special education teachers, and computer coordinators in 100 school districts. Overall, 100 administrators responded to Survey 1, and 93 special education teachers and 89 respondents identified as computer coordinators familiar with special education responded to Survey 2. A number of these computer coordinators also held other titles in the school system, including principal or assistant special education director (8 percent), guidance counselor (4 percent), curriculum coordinator (2 percent) and media center coordinator (2 percent). Below is a table of the survey respondents by district size.

	District Size		
	Small	Medium	Large
Survey Respondents			
Special education director	33	33	34
Special education teacher	26	33	34
Computer coordinator	22	33	34

Please note that, in the presentation of findings which follow, results based on the responses of "teachers" include information gathered from both special education teachers and the computer coordinators familiar with computer use in special education who were interviewed.

The administrators, in describing their special education programs, reported similar student/teacher ratios regardless of district size.

	District Size		
	Small	Medium	Large
Average			
Number of special education students served	238	810	4,139
Number of full-time special education teachers	19	51	320
Student/teacher ratio	12.5	15.9	12.9

The teachers in the sample taught at all grade levels from kindergarten through 12th grade and, in general, worked in just one or two schools within their districts.

Current Availability and Use of Computers in Special Education

Availability

Hardware

Although computer use was not a prerequisite for participation in this study, all of the administrators and teachers surveyed reported that there were computers available for use by their special education students.

The number of computers per district varied with the size of the school district. While 39 percent of the small districts had five computers or less in their district, 29 percent of the

large districts had over 100 computers available for use by special education students.

However, when the number of computers available *per special education student* is considered, the small districts seemed to be somewhat ahead in making the technology available to special education students.

	District Size		
	Small	Medium	Large
Number of computers per SPED* student	0.2	0.1	0.1

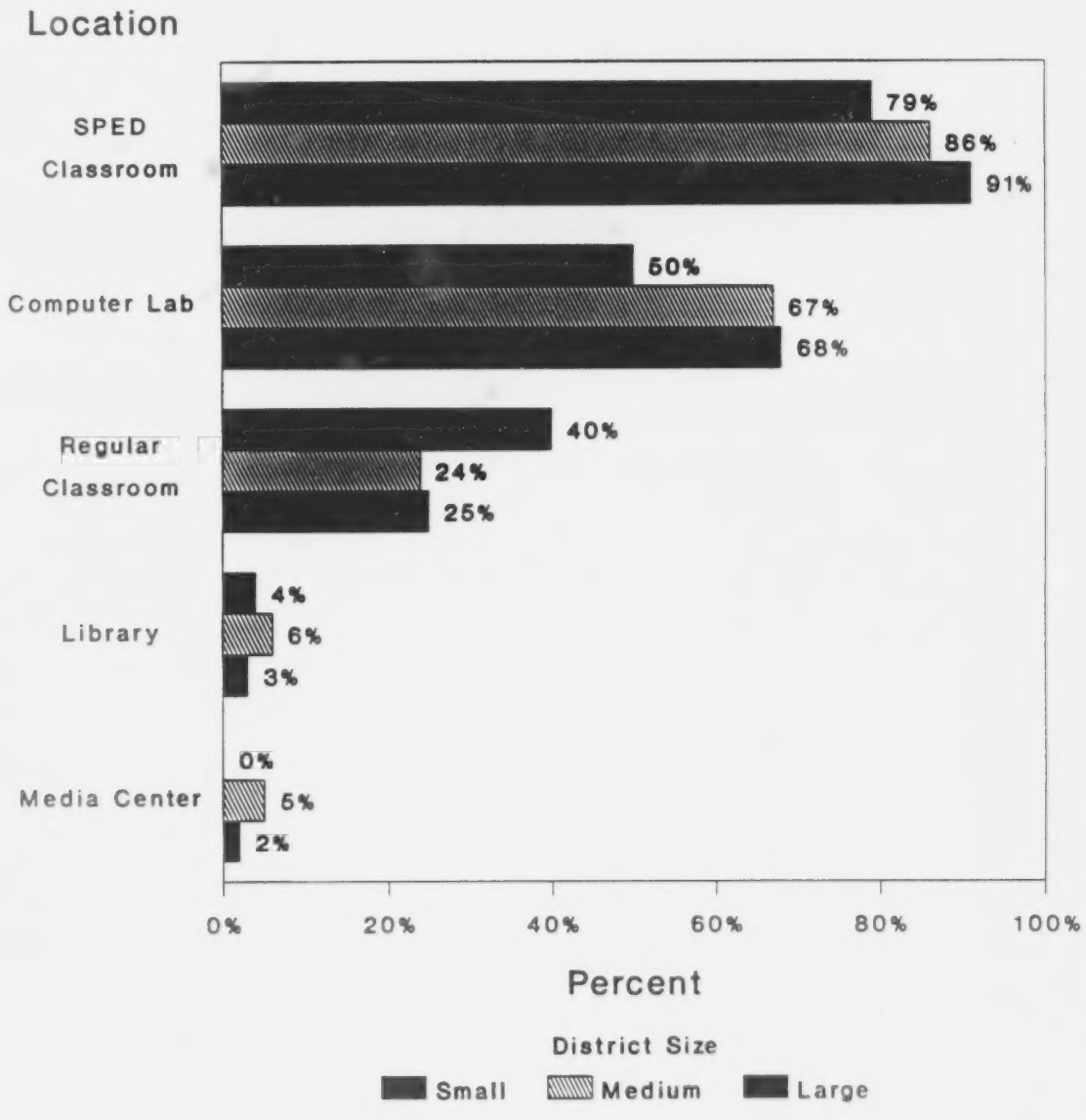
Special education staff in small districts also had better access to computers.

	District Size		
	Small	Medium	Large
Number of computers per SPED teacher	4.3	1.1	2.0

The computers available for use by special education students were primarily located in special education classrooms and computer labs. The administrators reported slightly different computer locations than the teachers. However, presumably the teachers had a better knowledge of the actual location of the computers used by their students. Exhibit 2 shows the locations reported by the teachers.

Special Education

Exhibit 2
LOCATION OF COMPUTERS FOR USE BY SPED STUDENTS



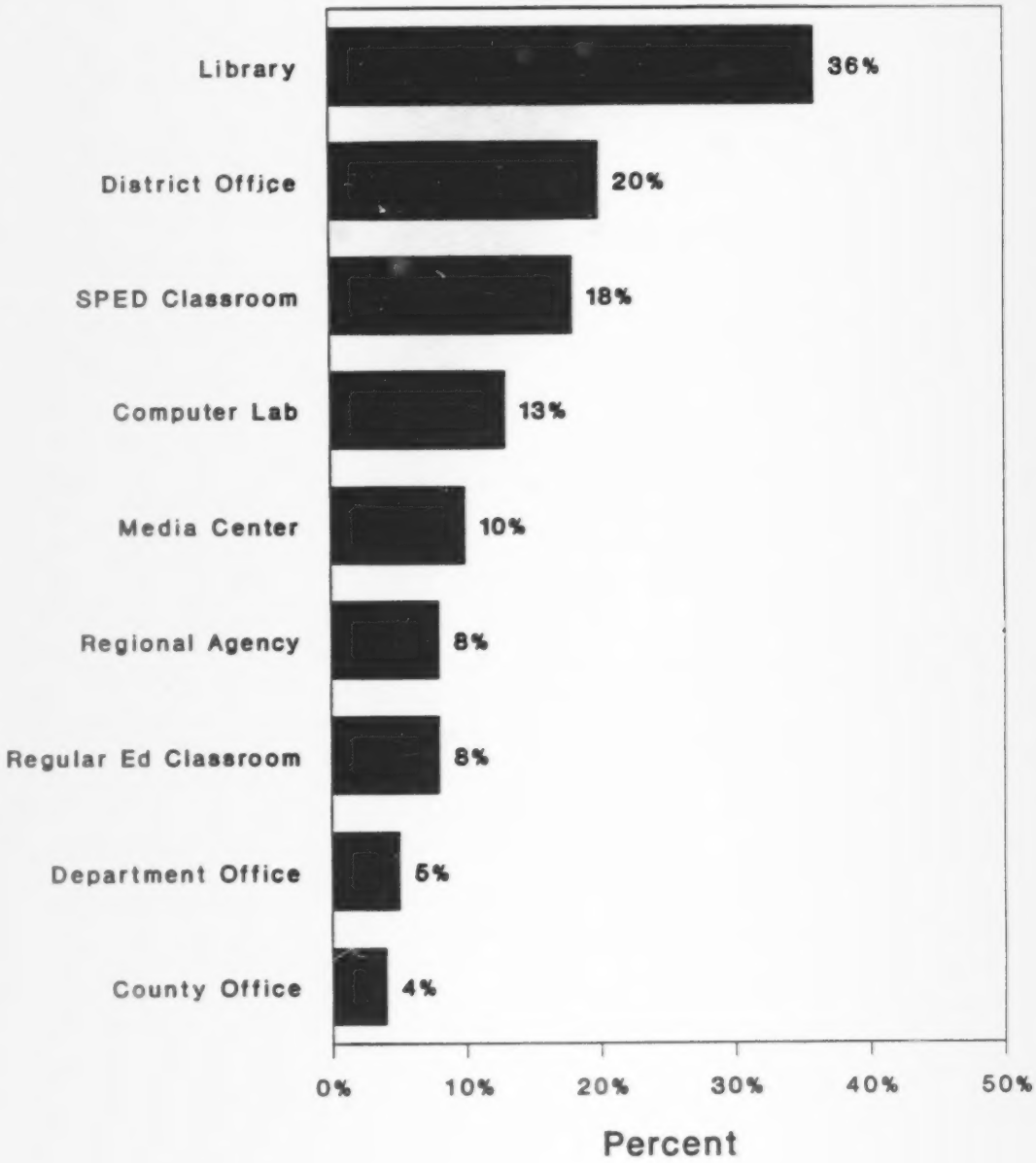
Software

Overall, 87 percent of the administrators and 82 percent of the teachers said that libraries of instructional software were available to special education staff. The teachers reported that their software libraries were located primarily in the school library (36 percent), the district office (20 percent), and the special education classroom (18 percent). Exhibit 3 shows the various locations of software libraries.

Large school districts were most likely to have software libraries located in the district office. Thirty-five percent of the large district libraries were located in a district office, as opposed to 20 percent for the small districts and 14 percent for the medium districts. When the software library locations that were probably least accessible to teachers were combined -- that is, district offices, regional or area agencies, and county offices -- large districts seemed to have software libraries that were less accessible to teachers than did the small and medium districts.

	District Size		
	Small	Medium	Large
% teachers reporting software library locations in district office, area agency or county office	33	23	48

Exhibit 3
LOCATION OF SOFTWARE LIBRARIES



Extent of Use

Eighty-two percent of the teachers overall said they used computers regularly for special education instructional purposes. This percentage was consistent across school districts of all sizes.

	District Size		
	Small	Medium	Large
% teachers reporting computer usage for instructional purposes	81	86	81

However, because of the way in which teachers were selected (i.e., based on their use of computers), their reports of levels of use appear not to be representative of their districts. When the special education administrators were asked to estimate the percentage of special education staff in their district who used computers for instruction, the estimates were considerably lower than those based on teachers' reports.

In addition, the results varied widely according to district size. Administrators in large school districts estimated sharply lower usage than was reported by the teachers themselves. In the large districts, 81 percent of the teachers reported they used computers. However, only 28 percent of the administrators estimated computer usage at over 75 percent of the entire special education staff, and just 53 percent estimated usage by over half of the special education staff.

	District Size		
	Small	Medium	Large
% administrators estimating 100% computer usage	61	25	16

When using computers for instructional purposes, the special education teachers reported that they used computers primarily to allow students to practice current instructional material (97 percent), to develop writing skills (77 percent) and as a reward (60 percent). The figures were reasonably consistent across school districts of all sizes. Exhibit 4 shows the instructional uses of computers reported by teachers.

Further, regarding both types and subject areas of instructional software used the findings were remarkably consistent across school districts of all sizes.

- The teachers most commonly used drill and practice (80 percent of the teachers reported using this type of software), word processing (71 percent), games (55 percent) and tutorial (42 percent) instructional software (see Exhibit 5).

- The teachers employed instructional software most often for math (89 percent) and language arts (88 percent) (see Exhibit 6).

While the use of instructional software was spread fairly evenly across grades K through 12, the teachers reported the highest use in grades 3 through 6 (see Exhibit 7).

Exhibit 4
INSTRUCTIONAL USES OF COMPUTERS

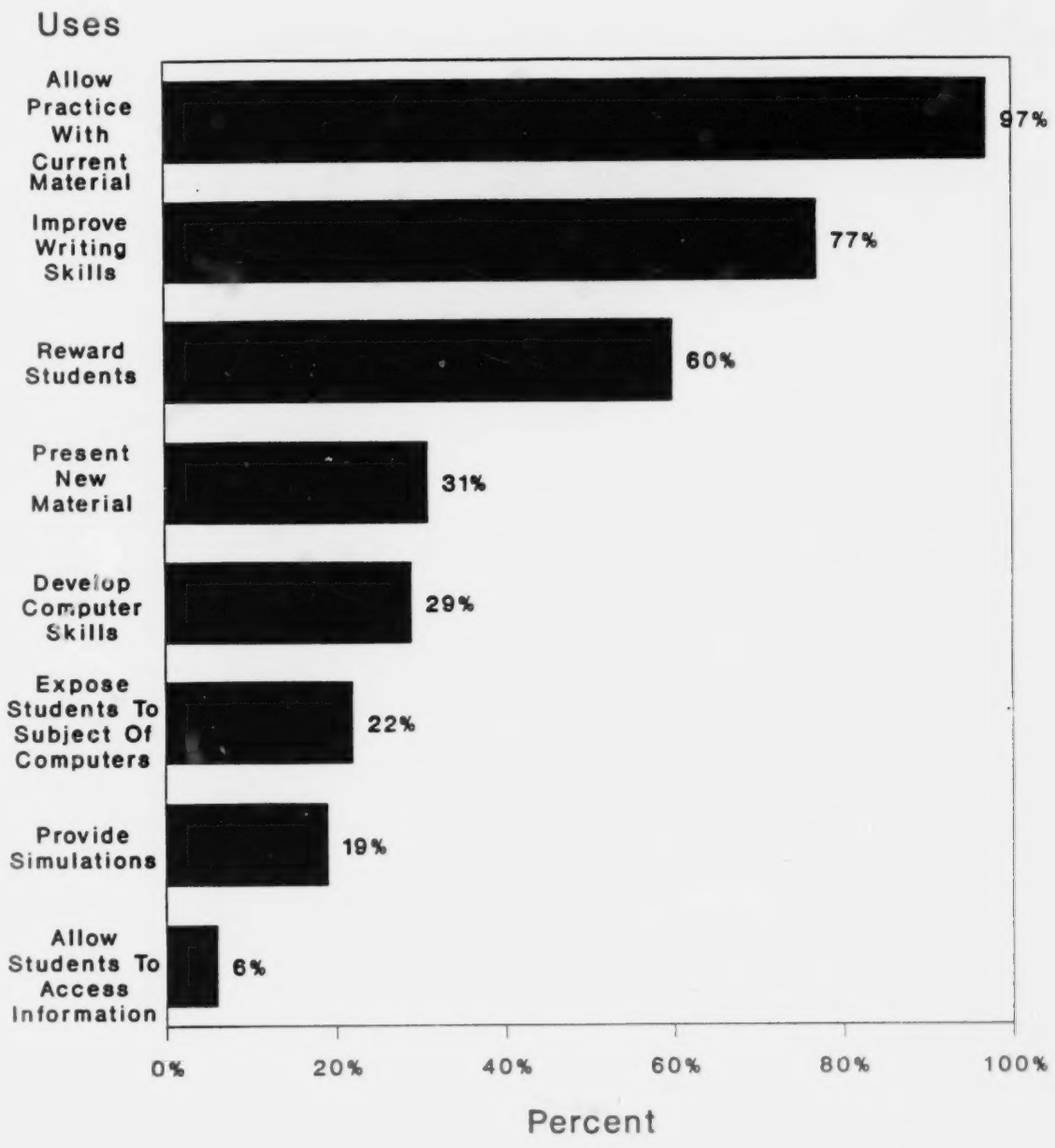


Exhibit 5
TYPES OF INSTRUCTIONAL SOFTWARE

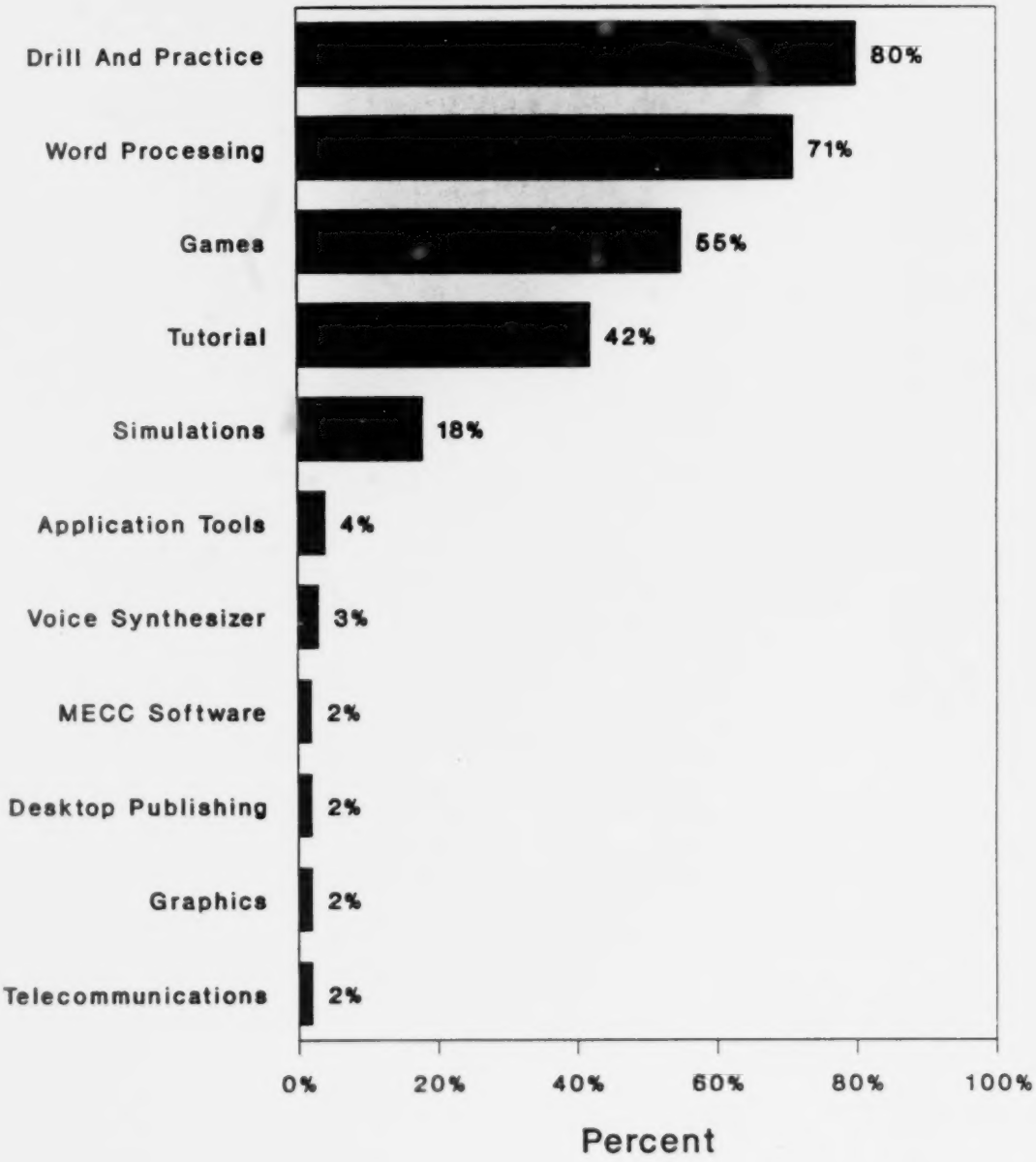


Exhibit 6
SUBJECT AREAS OF INSTRUCTIONAL SOFTWARE

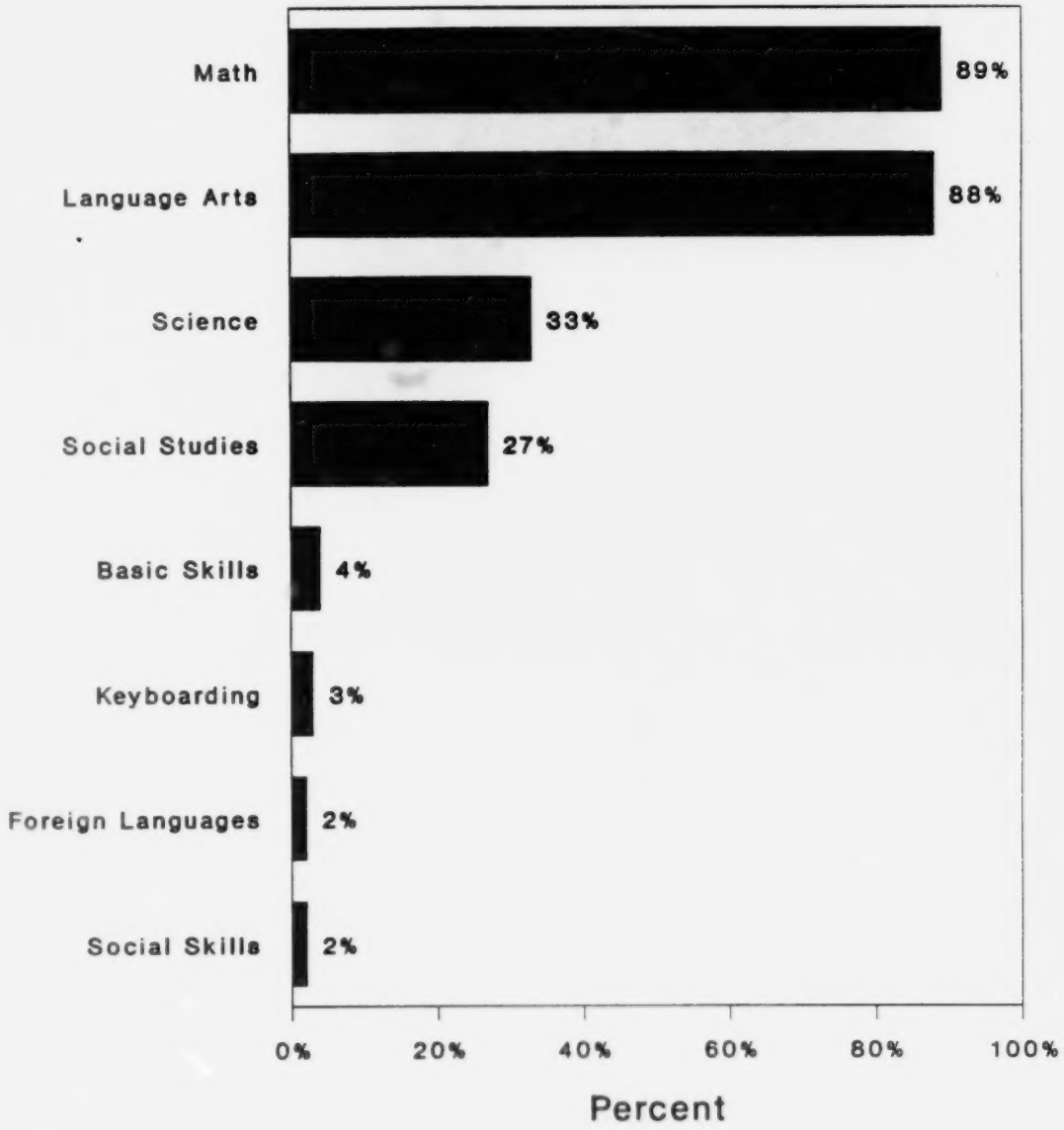
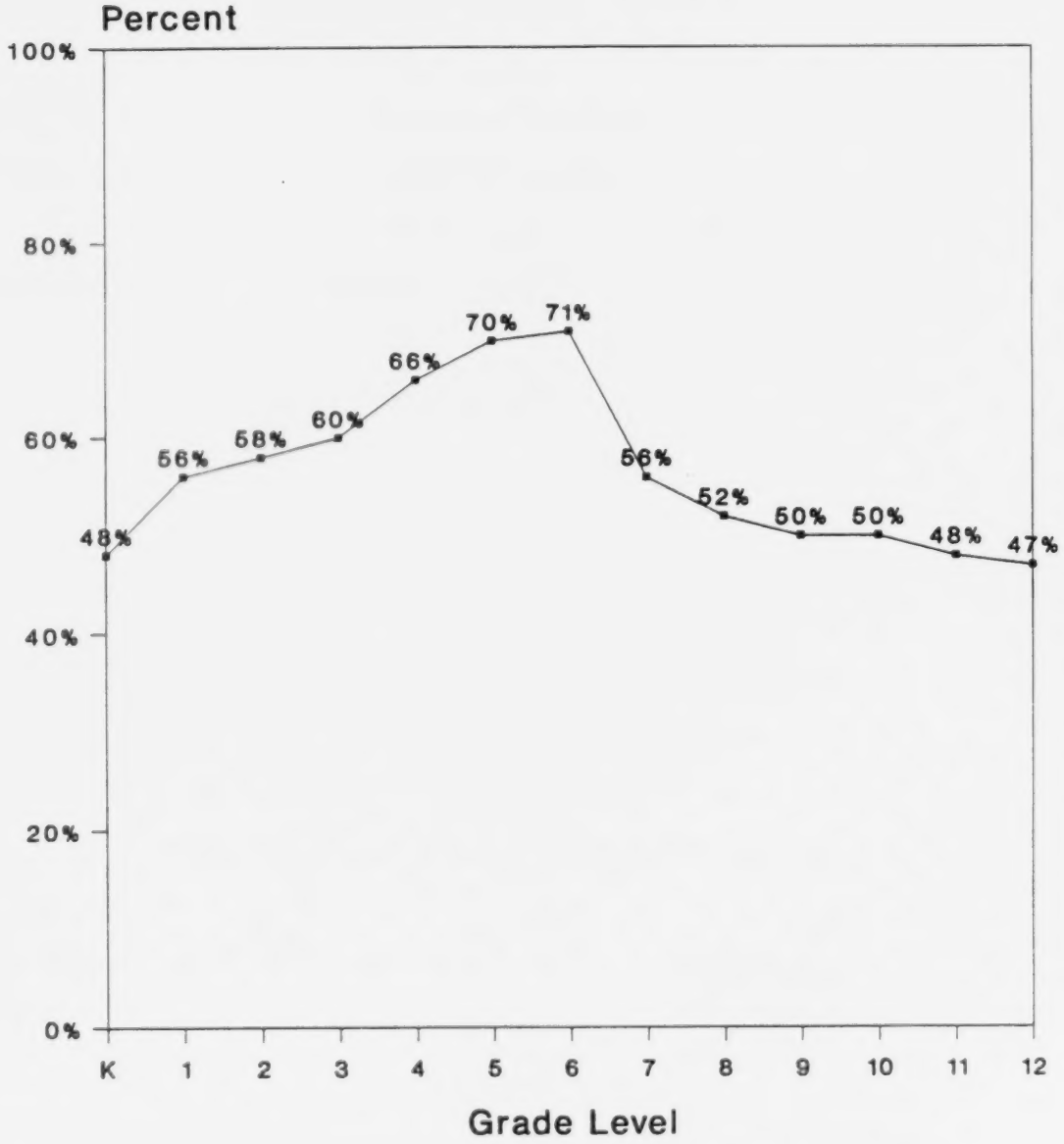


Exhibit 7
GRADE LEVELS USING INSTRUCTIONAL SOFTWARE



Factors Which Influence Use of Computers in Special Education

Of particular interest in this study was the description of current status of several factors which are believed, based on the results of previous qualitative studies, to influence computer usage for instruction in special education programs. They are:

- The extent of administrative involvement in key decision making processes,
- The degree of communication between district and building administrators,
- The level of interaction between administrators and teachers,
- The level of interaction between special and general education programs,
- The prevalence of training and technical assistance programs for educators, and finally,
- The degree to which computers are used for administrative applications.

The sections immediately following will describe findings from this study in these areas.

Special Education Administration Involvement in Decision Making Processes

Special education administrators were strongly involved in the distribution of computer resources within their districts. Ninety-two percent of the administrators (as opposed to just 65 percent of the teachers) said they participated in decisions regarding how computer resources for the special education program were distributed.

Eighty-three percent of the administrators overall said they purchased either hardware or software for special education instructional applications using funds appropriated for the special education program.

Decisions Related to Hardware

Three fourths of the administrators (and 72 percent of teachers) reported that they participated in the selection process of computer hardware for their special education program by either reviewing or selecting the hardware. Reviewing, for the purposes of this study referred to the process of either approving selections made by others, considering other people's recommendations or conveying recommendations to other decision makers.

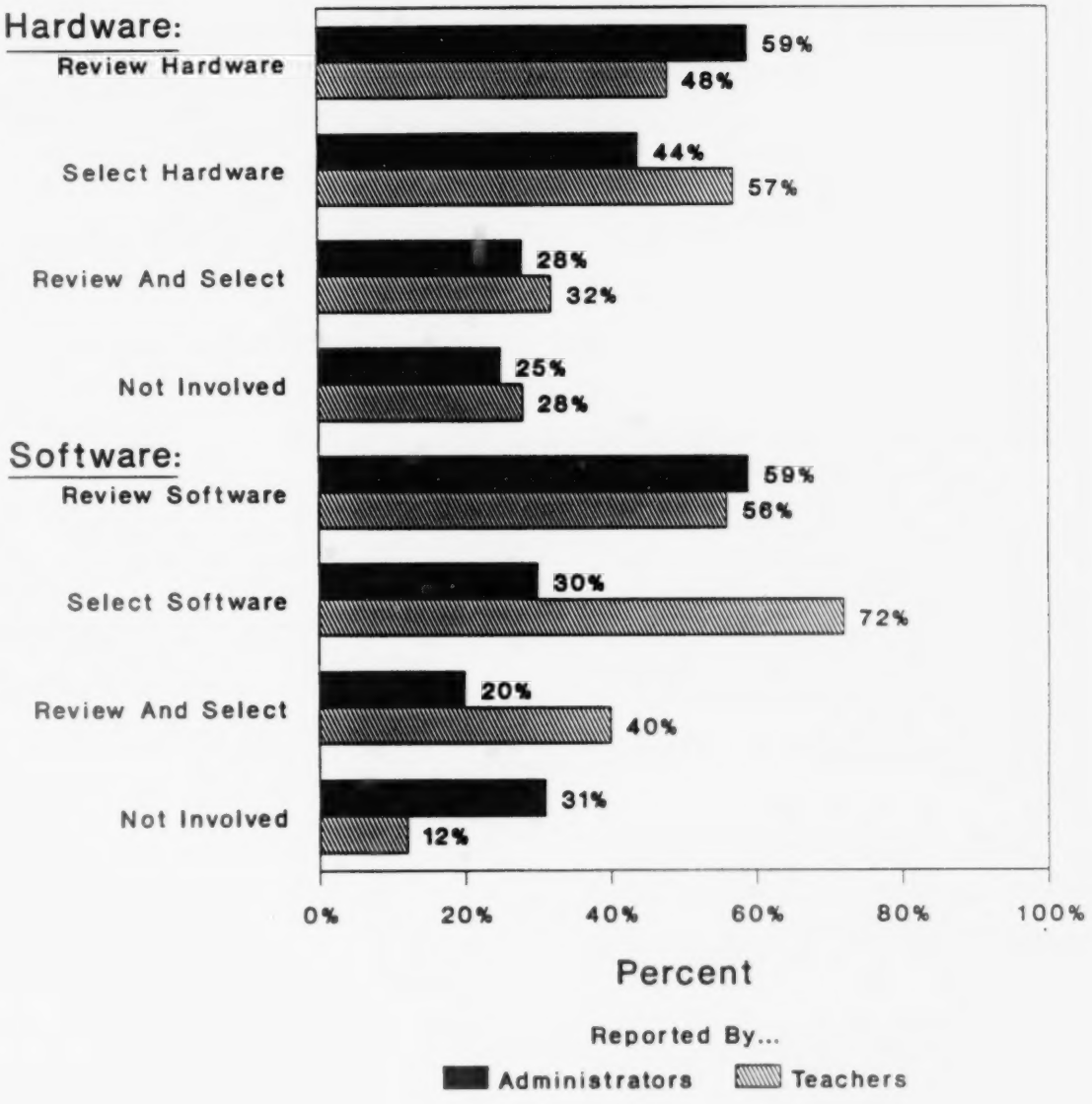
One fourth of the administrators said they were not involved at all in the selection process. However, this was partially explained by the fact that certain administrators were new to their districts, and the district had not acquired computer hardware recently. In addition, in certain school districts, the administrators reported that the acquisition of computer hardware was the responsibility of regular education. In these cases, special education students used computers only in regular education classrooms or computer labs.

Decisions Related to Software

Fifty-nine percent of the administrators said they had input into the selection process (i.e. they reviewed the software), but only 30 percent actually made the selection. The actual selection of software was largely left up to the teachers; 72 percent of the teachers surveyed said they personally selected the software to be used in their special education programs.

Exhibit 8 contrasts the administrators' and teachers' roles in the selection process of hardware and software.

Exhibit 8
INVOLVEMENT IN SELECTION OF HARDWARE AND SOFTWARE



Frequency of Participation in Committee Processes

Over half of the administrators in the large districts reported that they met with a committee on a regular basis to plan for and make decisions about computers and their use in the special education program. As might be expected, as the size of the school district increased, a larger percentage of administrators worked regularly with a committee.

	District Size		
	Small	Medium	Large
% administrators working regularly with committee	18	45	53

The frequency of committee meetings varied. However, 57 percent of the administrators reported monthly committee meetings, and one fourth of the administrators reported between one and five meetings during the school year.

Committee Functions

Two thirds of the administrators who worked with a committee said their committee functions included planning for computer use in instruction. Nearly three fourths of the administrators said they used the committee time to set curriculum goals for computer use. This was more often the case in the small districts, where 83 percent of the administrators' committees set curriculum goals, compared to just half of the administrators in the large districts.

The other functions commonly cited by the administrators were reviewing computer use and needs and acquiring hardware and software. Overall, 93 percent of the administrators said the committee dealt with computer hardware for the special education program in one way or another, and 80 percent said they dealt with issues concerning computer software.

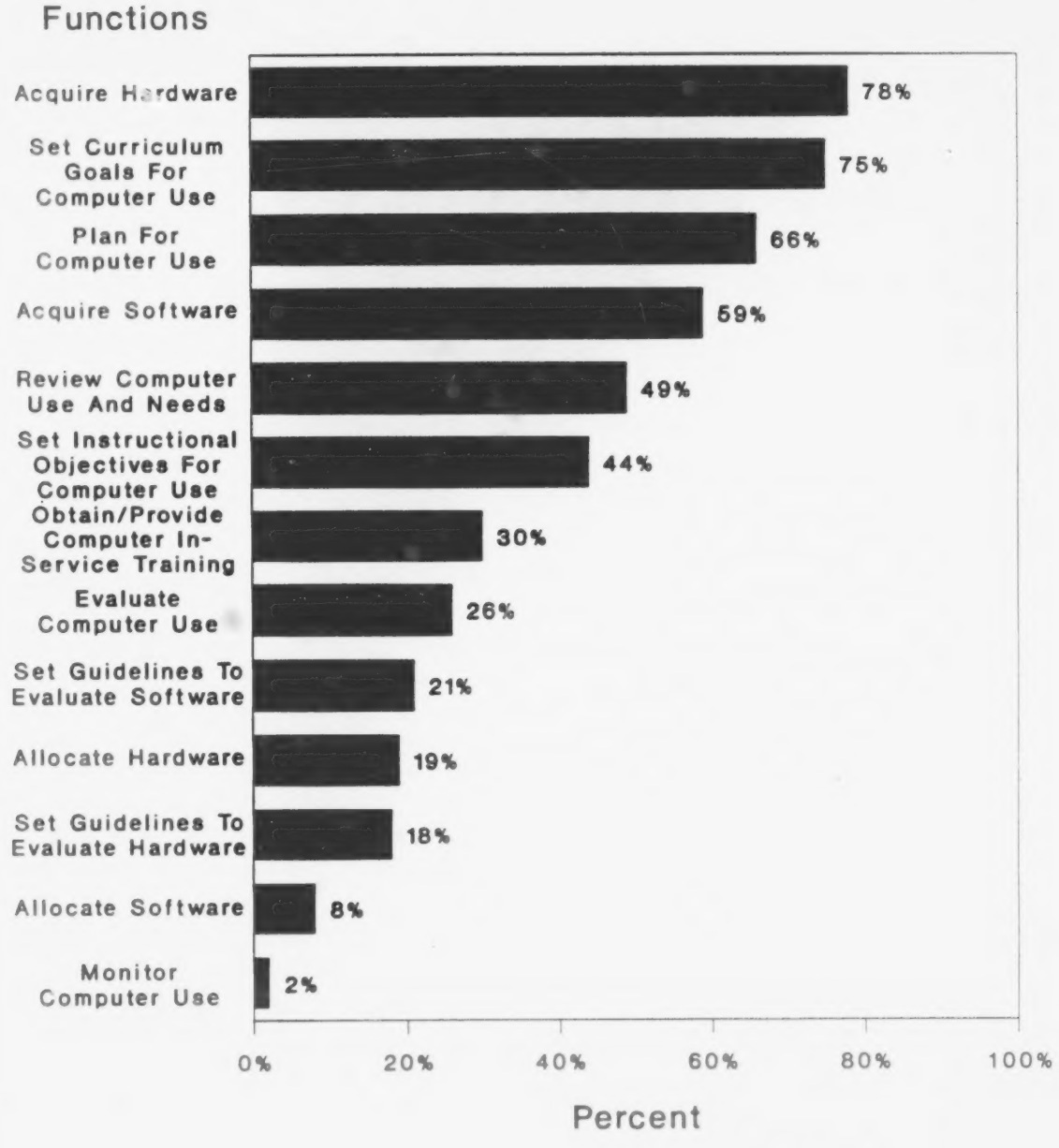
Exhibit 9 displays the functions of the committees in which special education directors participated to plan for and make decisions about computers and their use.

Level of Committee Organization

The committees that the special education administrators worked with on a regular basis were more likely to be organized on the district level, especially as the size of the district increased. However, half of the small district administrators reported that their committees were organized on levels other than the district or building level, most often county or regional levels.

	District Size		
	Small	Medium	Large
% committees organized on district level	50	93	89

Exhibit 9
ADMINISTRATORS' COMMITTEE FUNCTIONS



Communication Between District and Building Level Administrators

Outside of the committee process, 69 percent of the special education administrators worked with other administrators on the district level to make decisions about computers in the special education program. However, only half of the special education administrators worked with administrators at the building level. As might be expected, as the size of the district increased, the district administrators were less likely to interact directly with building administrators.

	District Size		
	Small	Medium	Large
% administrators working with building administrators	52	46	38

One third of the administrators in the medium districts and almost two thirds in the large districts also reported that they worked with "other special education administrators," -- compared to 12 percent in small districts. This points up the fact that the decision making process in larger districts was more likely to include assistant special education administrators or program administrators, whereas in the small districts, the special education director was very often the sole administrator of the program.

Interaction Between Administrators and Teachers

Although we found that the majority of administrators (92 as percent previously mentioned) were involved in the decision making process concerning computer use in special education programs, there was less evidence of direct interaction between administrators and special education staff in making these decisions. The main setting for this interaction was committee meetings, especially in medium and large districts.

While two thirds of the teachers in the small and large districts, and half the teachers in the medium districts said they took part in decisions on the distribution of computer resources, the percentage dropped when the teachers were asked whether they worked with administrators on a regular basis to make decisions about computers. Just 36 percent of the teachers said they worked regularly with district administrators, 40 percent with building administrators and 34 percent with other special education administrators to make decisions about computer use. Thirty percent of the teachers stated that they did not meet regularly with administrators at all. The percentage varied somewhat according to the size of the district, with teachers in the medium districts reporting the most interaction with administrators.

	District Size		
	Small	Medium	Large
% teachers reporting regular meetings with district, building, or special education administrators	69	80	72

In the large school districts, a good deal of the interaction between teachers and administrators occurred in the context of a committee. Twenty-two percent of the special education administrators overall worked with a committee on a regular basis and 23 percent of the teachers interviewed worked with a committee. These figures rose to 53 percent and 43 percent respectively in the large districts.

Importantly, two thirds of the administrators who worked with committees said that the committee responsible for planning computer use also included special education teachers, and 69 percent of the special education teachers reported that their committees also included special education administrators. Thus, the committee provided an opportunity for direct interaction between teachers and administrators in the decision making process.

Interestingly, the committees on which teachers served were quite likely to be organized on the district level (64 percent), especially in the larger districts. Eighty percent of the teachers in the medium districts and 62 percent in the large districts met with

committees organized at the district level, compared with 60 percent of teachers in the small districts. However, as would be expected, a greater percentage of teachers overall (27 percent) reported meeting with a committee at the building level than did the special education administrators (2 percent).

As with the administrators, in the larger-sized school districts, the teachers were more likely to work with a committee.

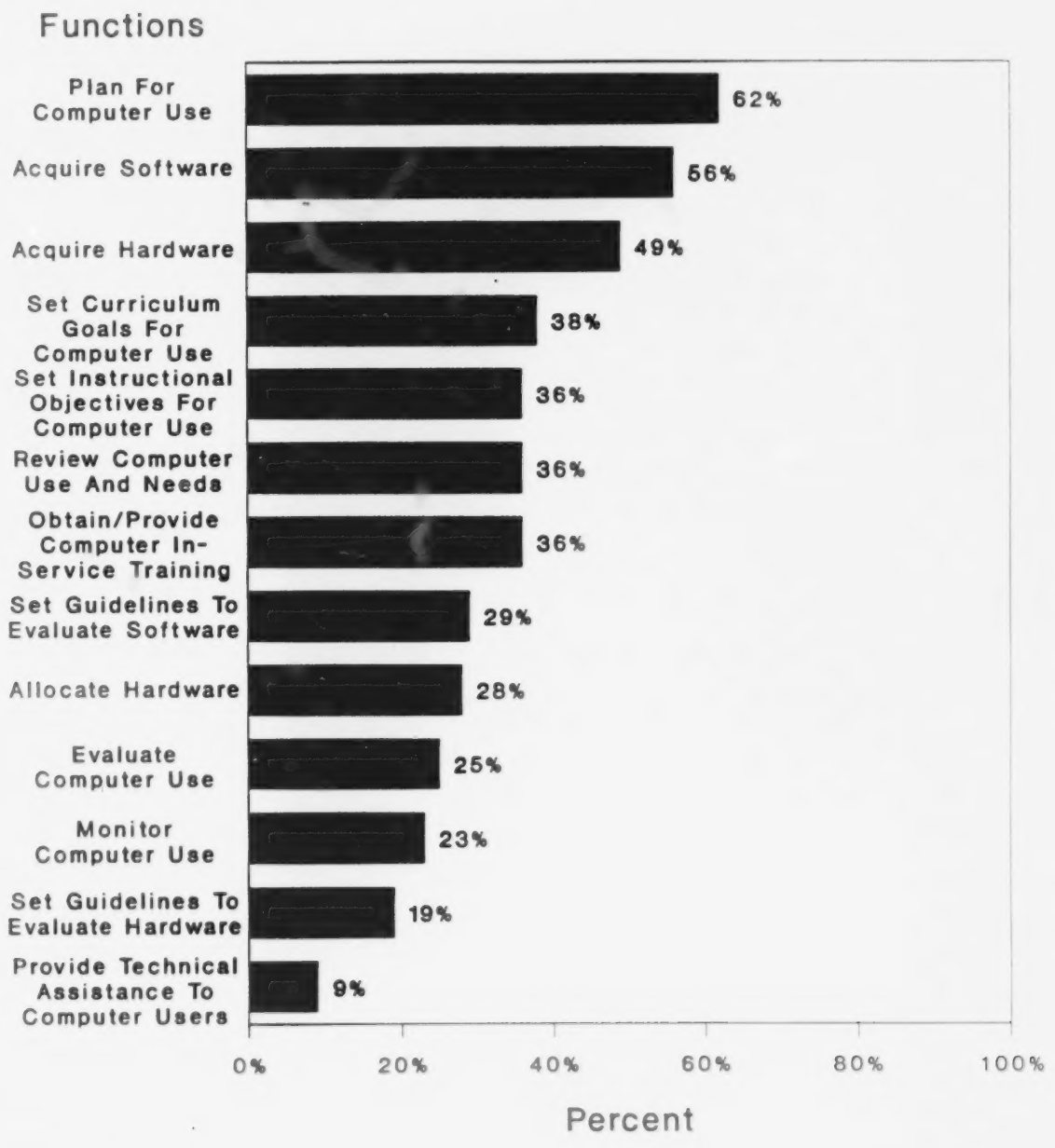
	District Size		
	Small	Medium	Large
% teachers working regularly with a committee	21	38	43

Only 18 percent of the committees in which teachers participated met once a month or more. These committees were most likely to convene one to five times a year. This differed, however, according to the size of the district.

	District Size		
	Small	Medium	Large
% Committees Meeting			
1 - 5 times/school year	89	38	39
6 - 10 times/school year	11	43	29
Over 10 times/school year	0	19	32

Exhibit 10 displays the main committee functions reported by the teachers. While three fourths of the administrators said they used committee time to set curriculum goals for computer use, the teachers used committee time primarily to plan for computer use and to acquire software and hardware.

Exhibit 10
TEACHERS' COMMITTEE FUNCTIONS



Interaction Between Special and General Education Programs

Over three fourths of the special education teachers said they shared computer resources with regular education, but this varied considerably according to size of district.

	District Size		
	Small	Medium	Large
% teachers sharing hardware	46	76	59
% teachers sharing software	73	80	62
% teachers sharing computer resources to some extent	75	82	65

However, when asked about formal mechanisms in place which might facilitate communication between the special education and general education staff about computers, 44 percent of the administrators interviewed said that no such mechanisms existed. In addition, over half of the teachers (63 percent in large districts) reported that no formal communication channels had been established.

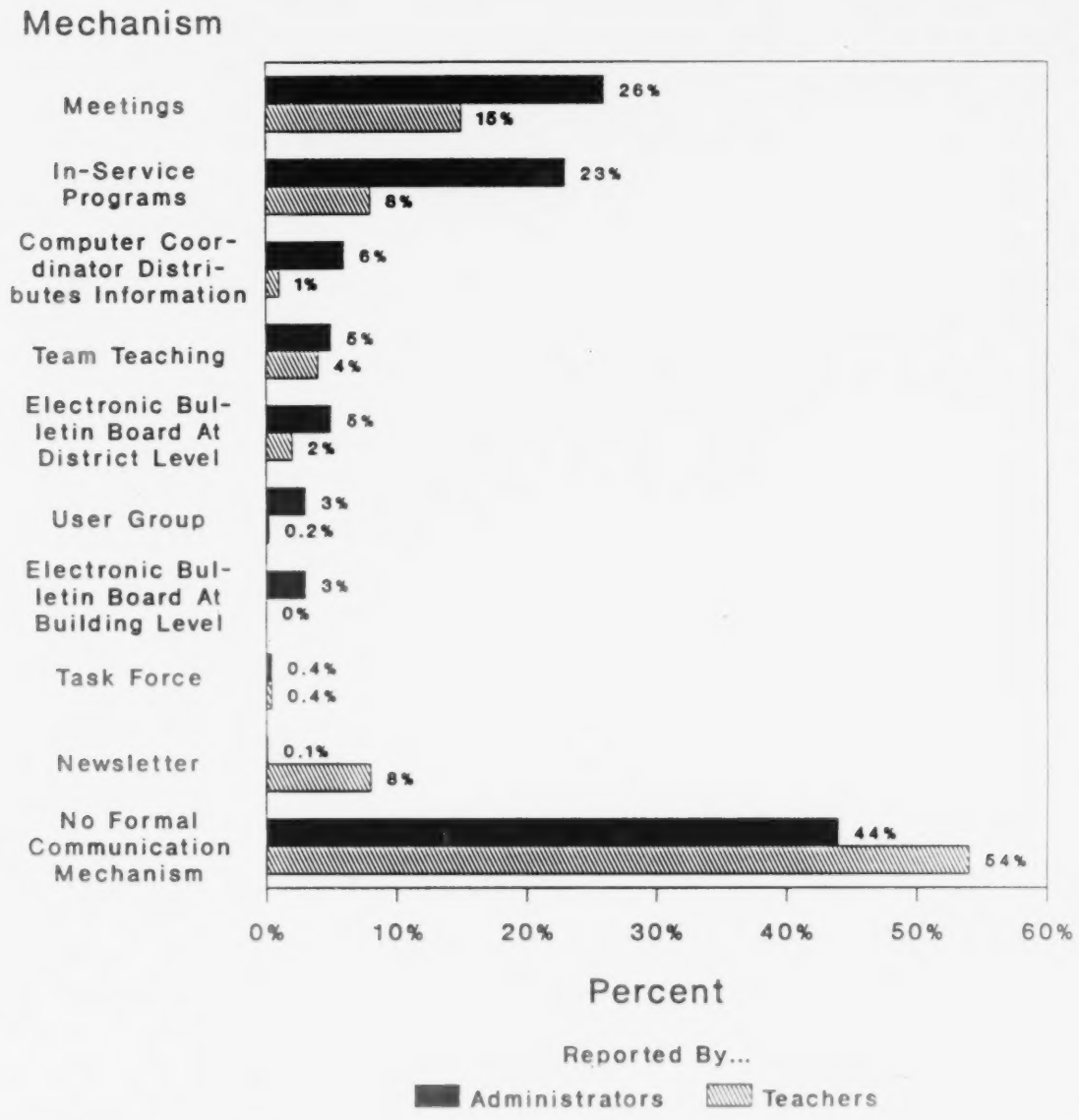
The most common communication channels cited by the administrators included meetings (26 percent) and inservice programs such as after-hours workshops and seminars (23 percent). The teachers also cited meetings (15 percent) and inservice programs (8 percent) as providing a channel of communication with regular education staff. For example, 36 percent of the special education administrators and 61 percent of the teachers said their committee included regular education teachers, and 53 percent of the administrators and 59 percent of the teachers said the committee included regular education administrators.

Although only 8 percent of the administrators and 2 percent of the teachers said they had computer bulletin boards in place, either at the district or building level, 100 percent of these respondents said the special education staff used the bulletin board. It appears then that

if an electronic bulletin board is established at either the district or building level, there is evidence to suggest that the special education staff will take advantage of the opportunity to communicate with other staff.

Exhibit 11 shows the formal communication mechanisms cited by administrators and teachers.

Exhibit 11
FORMAL COMMUNICATION MECHANISMS BETWEEN SPECIAL AND REGULAR EDUCATOR



In addition, it should be kept in mind that our interviews also revealed considerable contact between special and general educators on more informal levels. For example, as shown earlier in Exhibit 3, the special education teachers reported that a good portion of the software libraries available to them were located either in the school library (35 percent), the media center (14 percent) or the district office (15 percent). It seems reasonable to assume that special education teachers interact at least informally with regular education teachers in these settings.

Seventy-seven percent of the teachers surveyed said that special education and regular education *students* used computers together, in one location or another, and over half of the teachers said this occurred on a daily basis. Exhibits 12 and 13 show the location and frequency of computer use by special education and regular education students, as reported by the teachers. Unfortunately, the data do not include information about interactions between special and regular education staff which occur when special and regular education students use computers together.

Exhibit 12
SPECIAL AND REGULAR ED STUDENTS USE COMPUTERS TOGETHER IN:

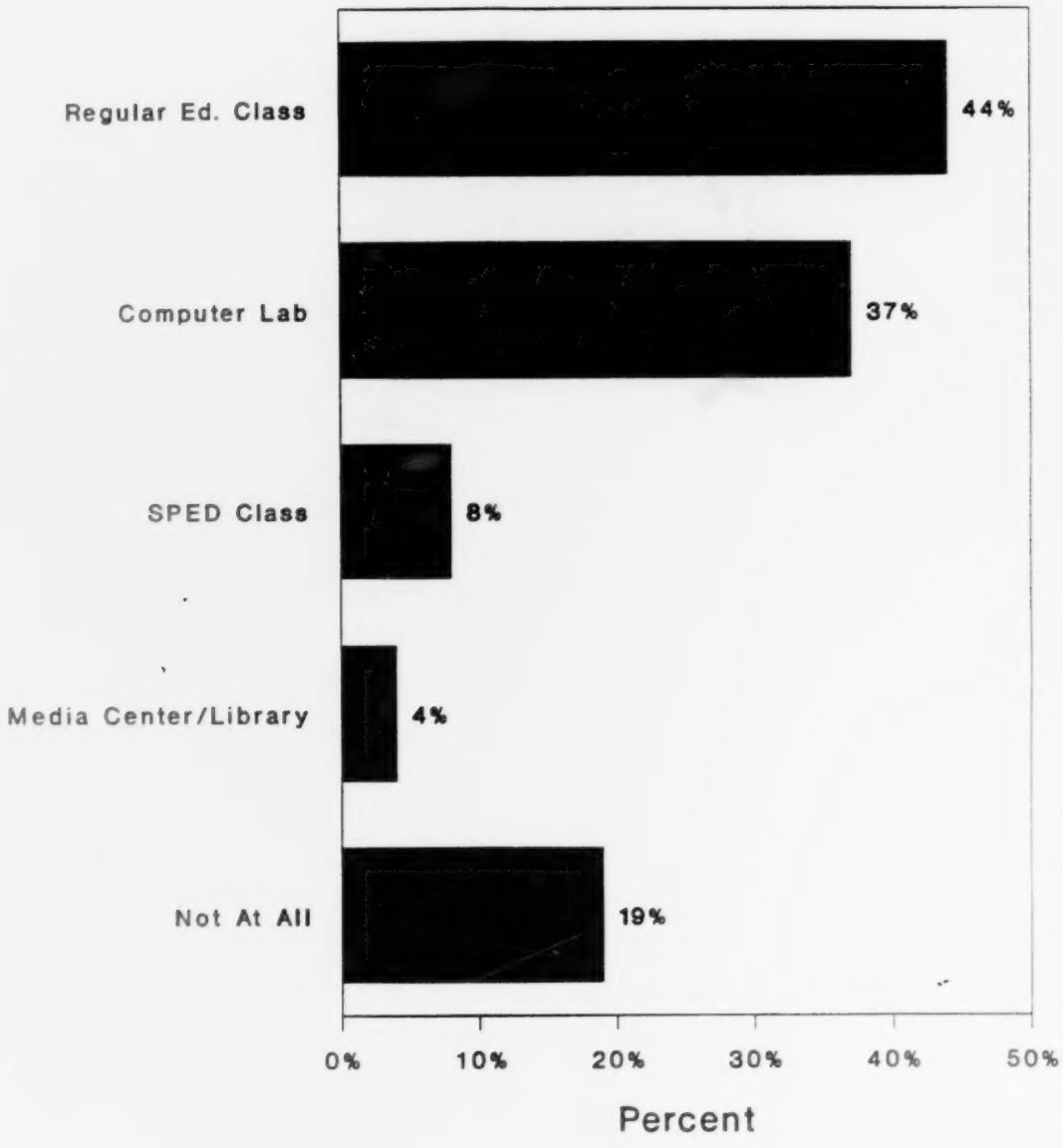
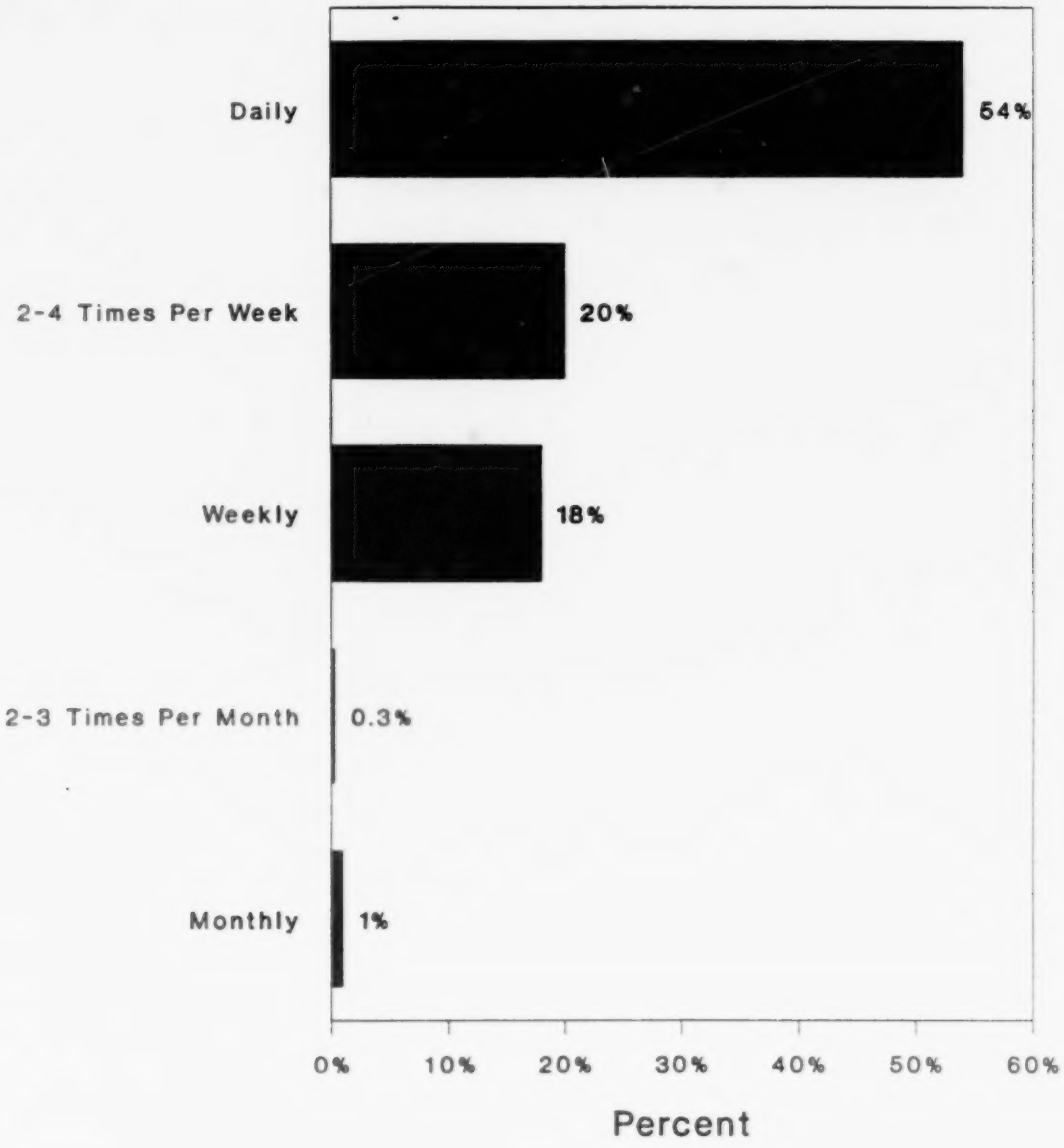


Exhibit 13
SPECIAL AND REGULAR ED STUDENTS USE COMPUTERS TOGETHER:



Availability of Technical Assistance

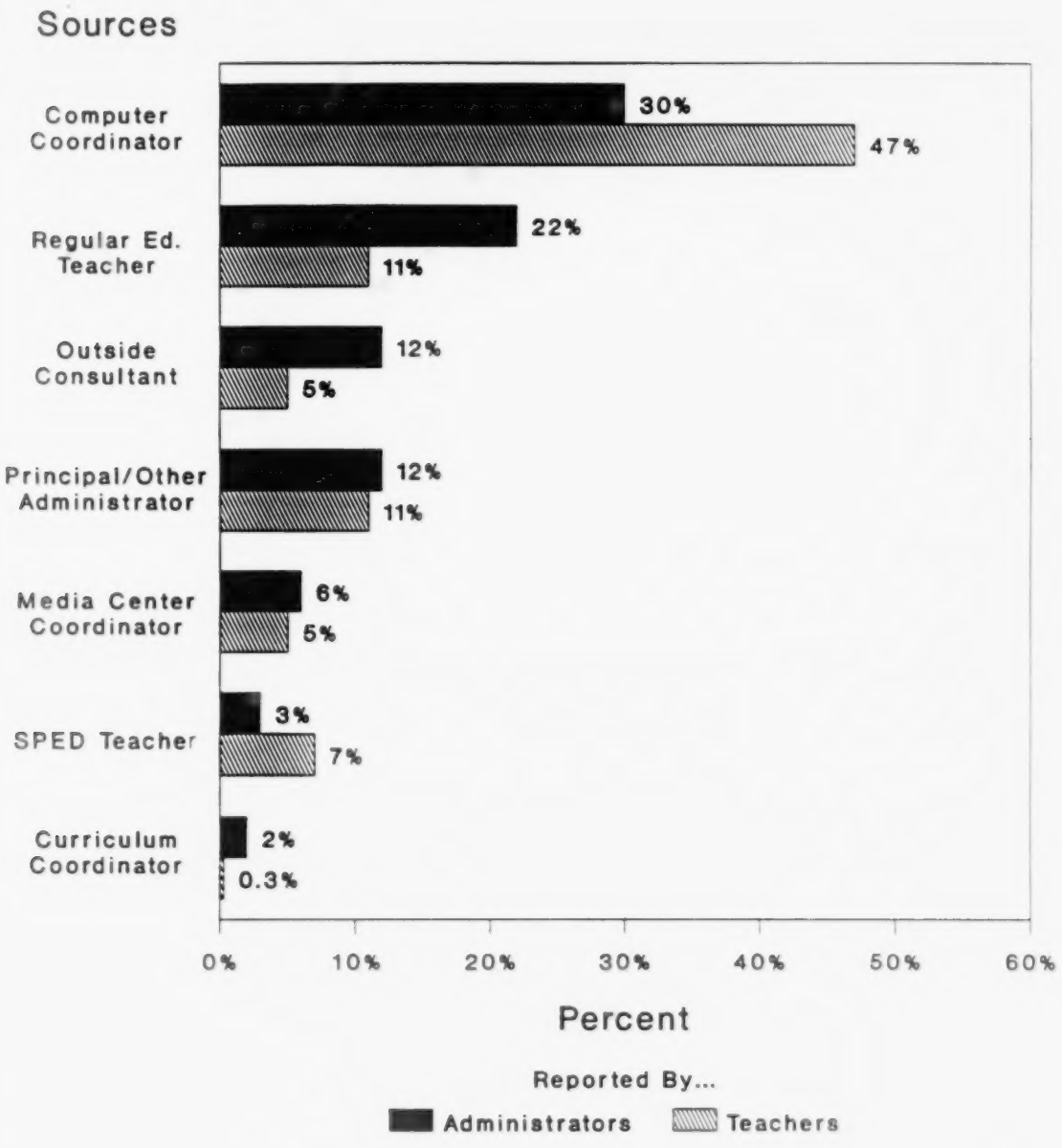
Ninety-four percent of the special education administrators and 90 percent of the teachers reported that technical assistance for computers was available to the special education staff. The administrators and teachers differed slightly in their reports as to the sources of technical assistance, but the two most common sources were the computer coordinator and a regular education teacher. Exhibit 14 shows the different sources cited by the administrators and teachers.

Results were generally consistent across districts of different sizes. However, 12 percent of the teachers in small districts and 8 percent in the medium districts reported that the school principal (or other school administrator) provided technical assistance, while none of the teachers in large districts reported building administrators as a source of technical assistance.

Frequently the computer coordinator was a formally established position. Overall, 53 percent of the administrators and 57 percent of the teachers reported that the computer coordinator's job was a formal position. This was more often the case in the large districts.

	District Size		
	Small	Medium	Large
% teachers reporting computer coordinator to be a formal position	56	64	78
% administrators reporting computer coordinator to be a formal position	52	58	85

Exhibit 14
SOURCES OF TECHNICAL ASSISTANCE



In general, when the computer coordinator position was formally established, it was a district level position. Nearly 100 percent of the administrators and 80 percent of the teachers reported the formal computer coordinator as a district level position. However, when the computer coordinator position was not formally defined, administrators and teachers responses differed. While 66 percent of the administrators overall reported that the informal computer coordinator operated at the district level, 69 percent of the teachers said the position was organized at the building level.

Elements of the Technical Assistance Program

Administrators and teachers were remarkably consistent in reporting the components of the technical assistance programs. Both the administrators and teachers reported that the top four elements included:

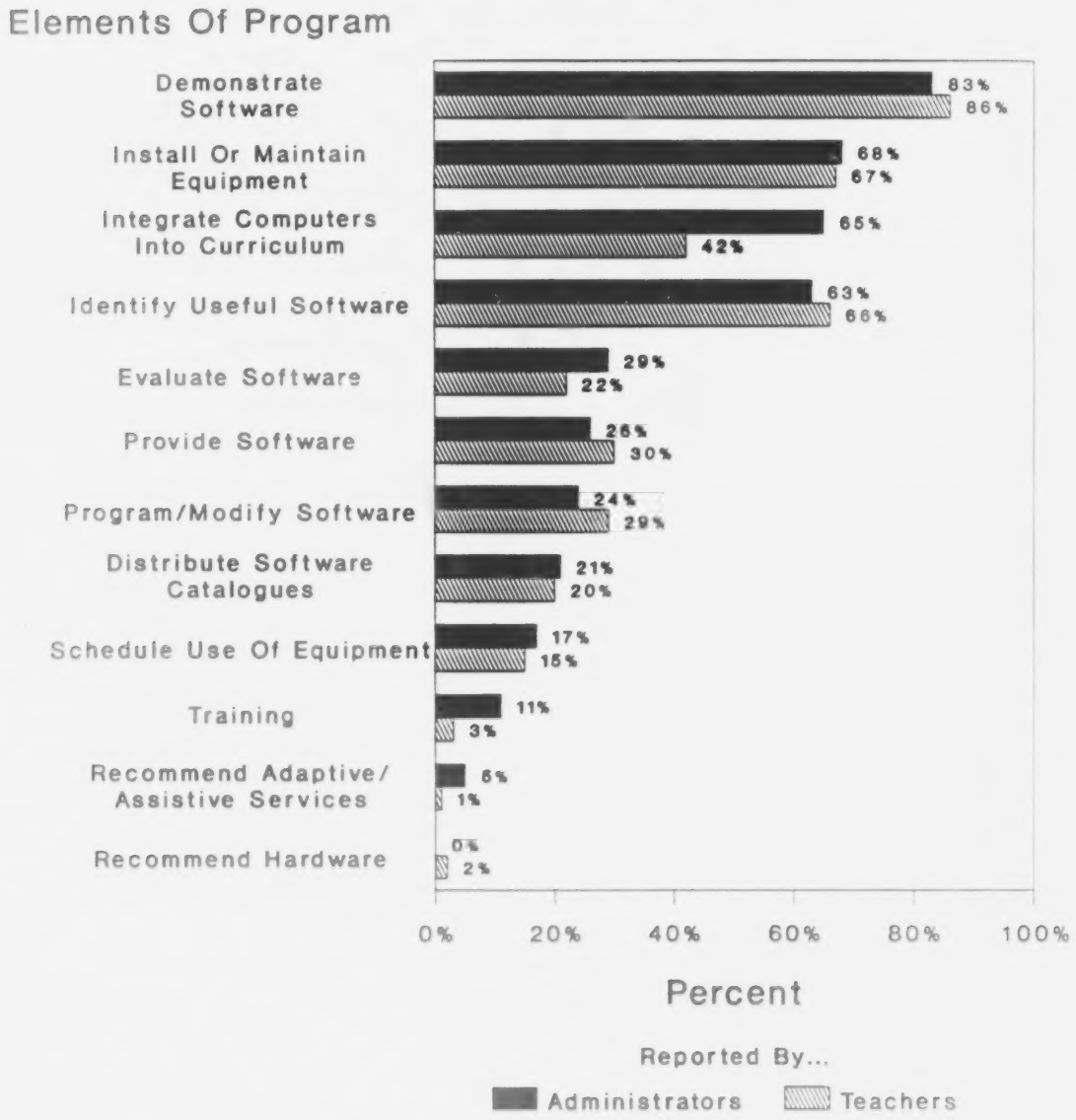
- demonstrating software,
- installing or maintaining computer equipment,
- integrating computers into the curriculum, and
- identifying useful software.

However, a greater percentage of administrators than teachers reported that their technical assistance program included help in integrating computers into the curriculum. Thus, administrators may tend to overestimate the presence of this important element.

	District Size		
	Small	Medium	Large
% administrators reporting integrating computers into curriculum as element of technical assistance program	68	45	79
% teachers reporting integrating computers into curriculum as element of technical assistance program	42	39	56

Exhibit 15 shows the various components of the technical assistance programs reported by administrators and teachers.

Exhibit 15
ELEMENTS OF TECHNICAL ASSISTANCE PROGRAM



Planning Staff Development Training Activities

Overall, one fourth of the administrators reported that their special education staff would receive between one and five hours of computer training by the end of the reported school year, and another quarter said the teachers would receive six to ten hours of training. This differed notably by district size, however. Twenty-eight percent of the administrators in the medium districts and 39 percent in the large districts reported that the teachers would receive between 21 and 50 hours of training. On the other hand, 25 percent of the administrators in the small districts reported that the teachers would receive no computer training at all. Exhibit 16 shows the administrators' estimates of the average number of hours of computer training to be received by each of their special education teachers by the end of the reported school year.

Eighty-two percent of the administrators overall (94 percent in the large districts) said they were *involved* in planning for staff development training activities to support computer use in the special education program. The same percentage said they also provided *funds* for staff development training activities. Finally, 57 percent of the special education administrators were actually responsible for *planning* the computer-related staff development activities for special education. The next most common designations for planning staff development activities were the school superintendent or principal and a regional agency. Exhibit 17 shows the full range of responses.

Exhibit 16
HOURS OF COMPUTER TRAINING RECEIVED BY SPED TEACHERS

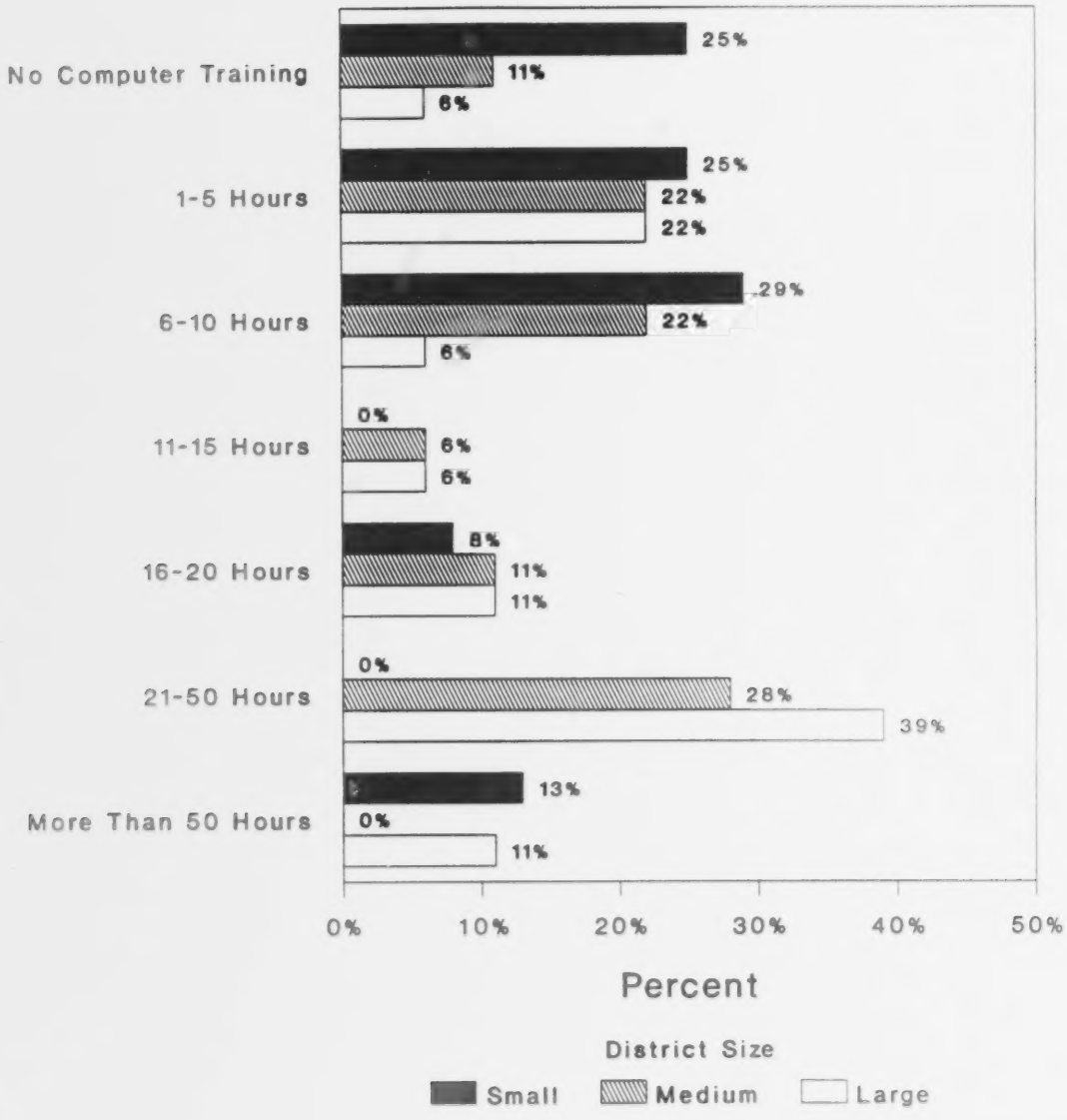
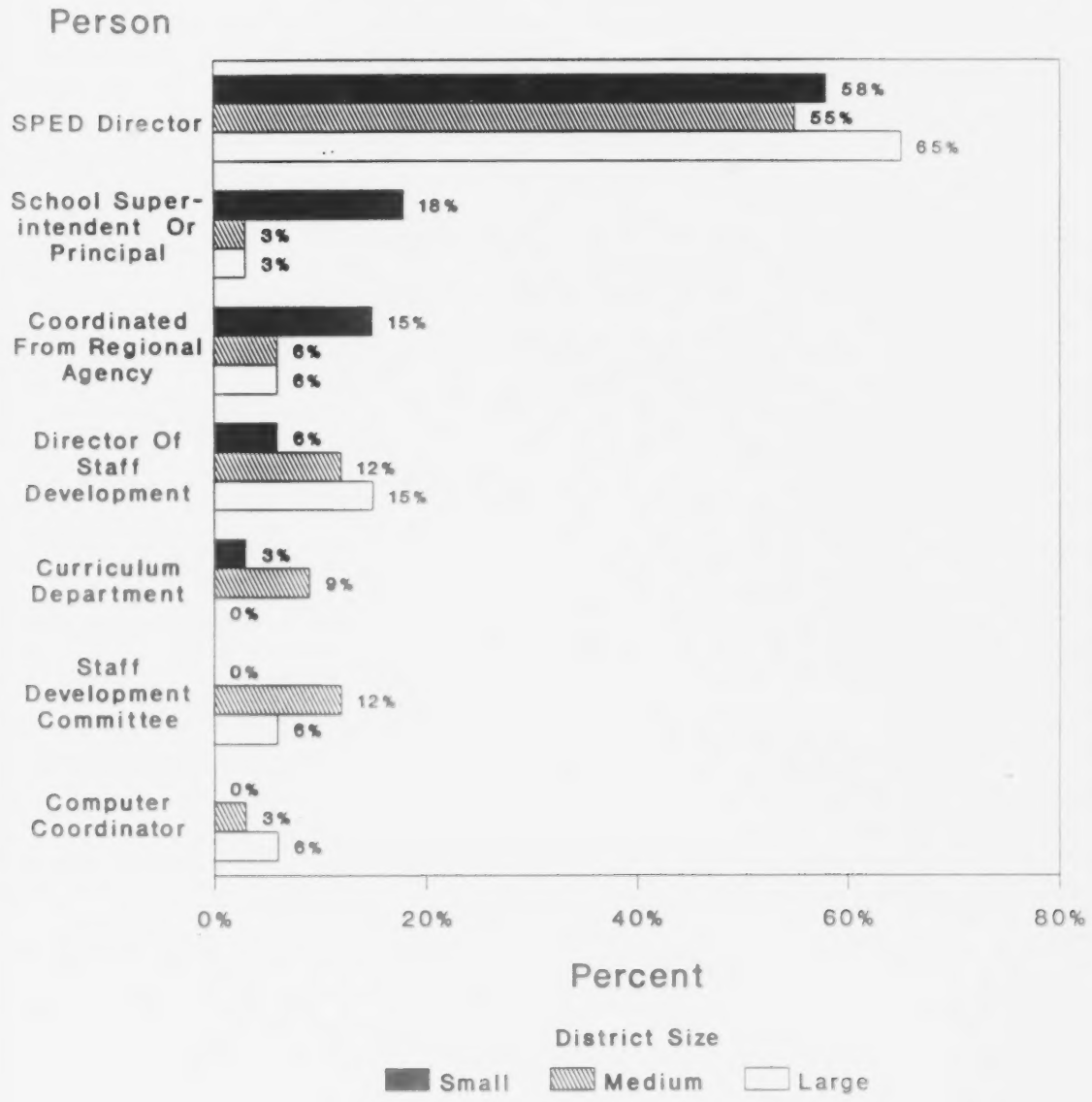


Exhibit 17
RESPONSIBILITY FOR PLANNING SPED STAFF DEVELOPMENT TRAINING ACTIVITIES



Participation in Staff Development Training Activities

Forty percent of the administrators said they had attended one to five staff development training activities related to computers and special education during the reported school year. While a majority of the administrators said they had attended no staff development training activities during the reported year, a number of administrators were quick to point out that they had been involved in training activities in previous years.

	District Size		
	Small	Medium	Large
% administrators who attended *no* staff development training activities related to computers during the 1988-1989 school year	58	76	59

Teachers were slightly more involved in training activities. Thirty-seven percent of the teachers overall reported that they had *attended* one to five staff development training activities "related to computers and of potential benefit to the special education program" during the reported school year. And 22 percent of the teachers surveyed said they had *led* one to five of the training activities during the year.

	District Size		
	Small	Medium	Large
% teachers who *attended* 1 - 5 computer-related staff development training activities	35	52	37
% teachers who *attended* no computer-related staff development training activities	60	46	54
% teachers who *led* 1 - 5 computer-related staff development training activities	21	28	22

Incentives for Participation in Training Activities

Both the administrators and teachers were asked about the incentives provided to special education staff to attend training activities on computer use. The most commonly cited incentives were:

- tuition reimbursement,
- the reimbursement of expenses, and
- salary increment credits.

The administrators and teachers differed somewhat in their reports of various incentives, but a similar percentage of both groups reported that no incentives at all are provided. The medium and large districts were more likely to offer incentives than the small districts.

	District Size		
	Small	Medium	Large
% administrators reporting *no* incentives provided to special education staff to attend training activities	45	30	29
% teachers reporting *no* incentives received for attending training activities	44	27	35

Furthermore, the incentives offered to the teachers differed somewhat in districts of various sizes. Far fewer small districts provided salary increment credits and stipends as incentives, and fewer large districts reimbursed teachers' expenses. Exhibit 18 shows the incentives reported by the administrators by district size. Exhibit 19 shows the various incentives reported by both administrators and teachers.

Exhibit 18
INCENTIVES PROVIDED TO SPED STAFF TO ATTEND COMPUTER TRAINING ACTIVITIES

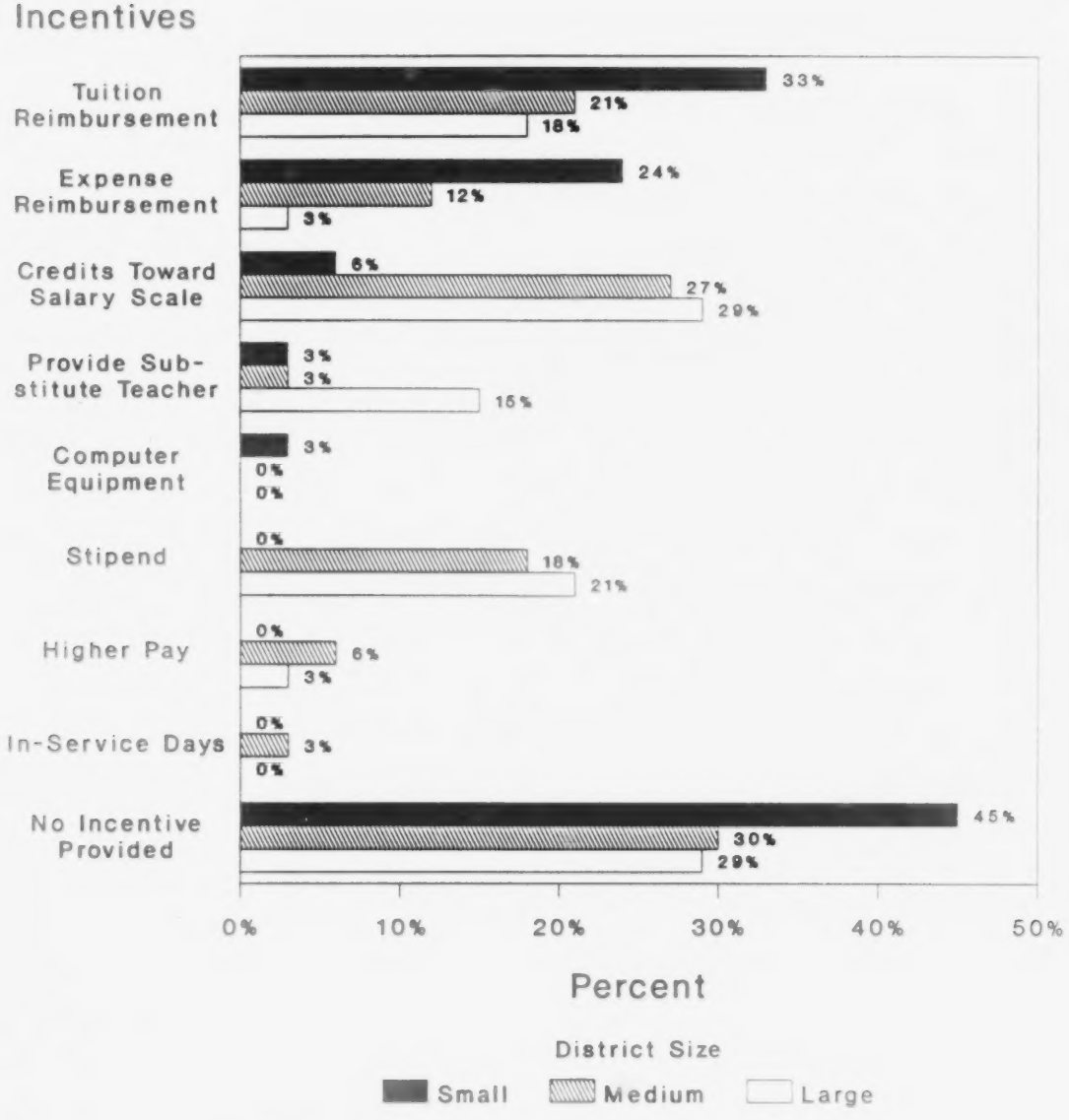
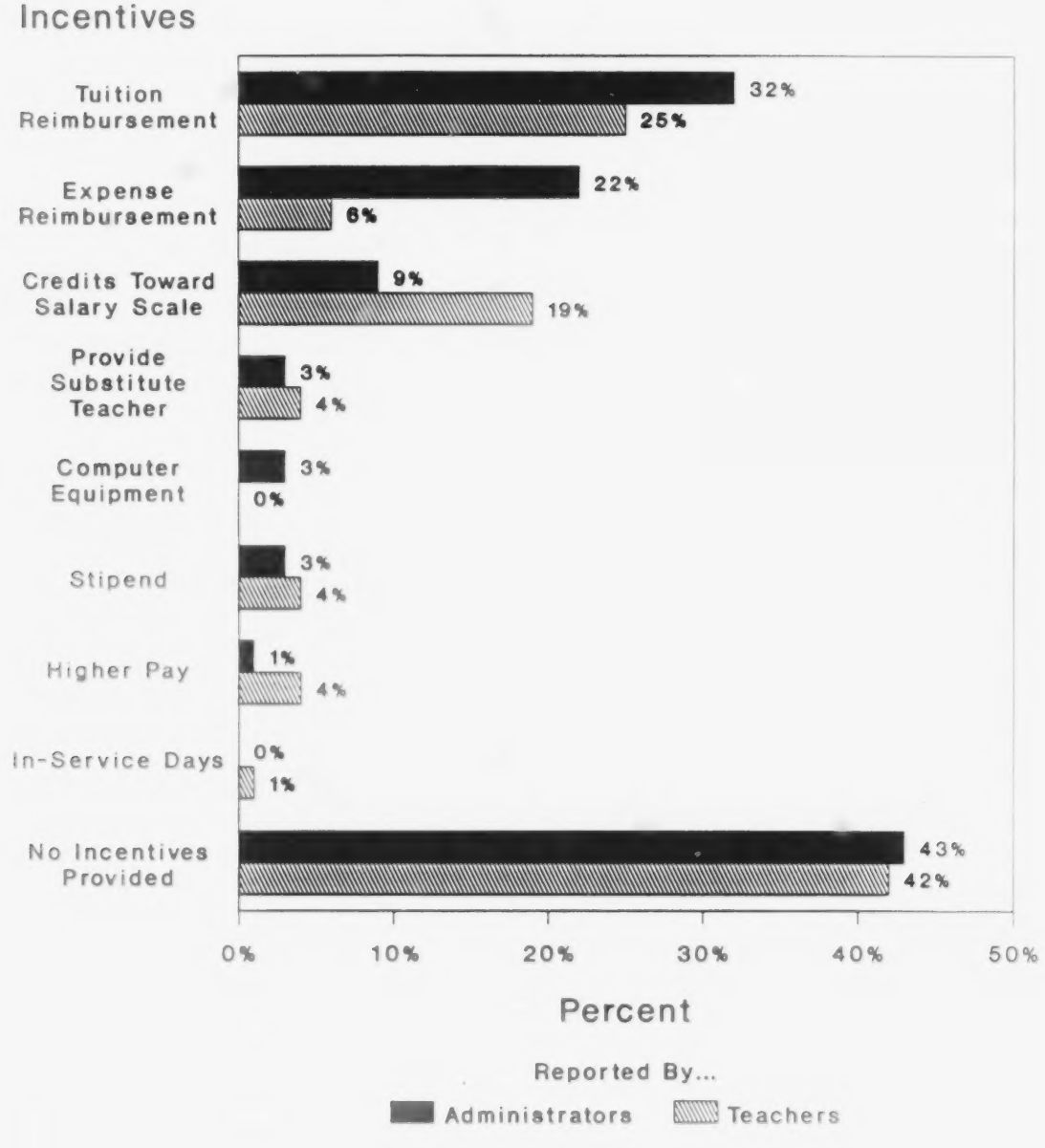


Exhibit 19
INCENTIVES TO ATTEND TRAINING ACTIVITIES



Concurrent Use of Administrative and Instructional Applications

Overall, 83 percent of the administrators surveyed said they had purchased hardware or software for *instructional* applications using funds appropriated for the special education program, and almost two thirds of the administrators overall said they used special education funds to purchase hardware or software for *administrative* applications. Considerable differences were noted by district size, with the large districts far more likely to have purchased hardware or software for administrative use.

	District Size		
	Small	Medium	Large
% administrators who purchased hardware or software for *instructional* applications	82	88	91
% administrators who purchased hardware or software for *administrative* applications	67	67	94

In addition, overall 86 percent of teachers reported they had purchased computers or software for instructional applications using funds appropriated for the special education program, but only 40 percent said they had purchased hardware or software for administrative applications. Exhibit 20 contrasts the instructional and administrative purchases of technology by the administrators and teachers.

Two thirds of the administrators in the medium and large districts and 79 percent in the small districts said they used computers regularly for professional purposes. The most common professional applications were:

- to prepare correspondence and reports,
- to manage staff or student records,
- to develop educational plans (IEPs) for students, and
- for budgeting purposes.

The teachers were also asked about the ways in which they used computers outside of special education instruction, and they reported using computers for many of the same purposes as the special education administrators. Exhibit 21 shows the range of professional applications mentioned by the administrators, and Exhibit 22 shows the range of ways in which teachers used computers, other than for instruction in special education classrooms.

Exhibit 20
PURCHASES FOR INSTRUCTIONAL VERSUS ADMINISTRATIVE APPLICATIONS

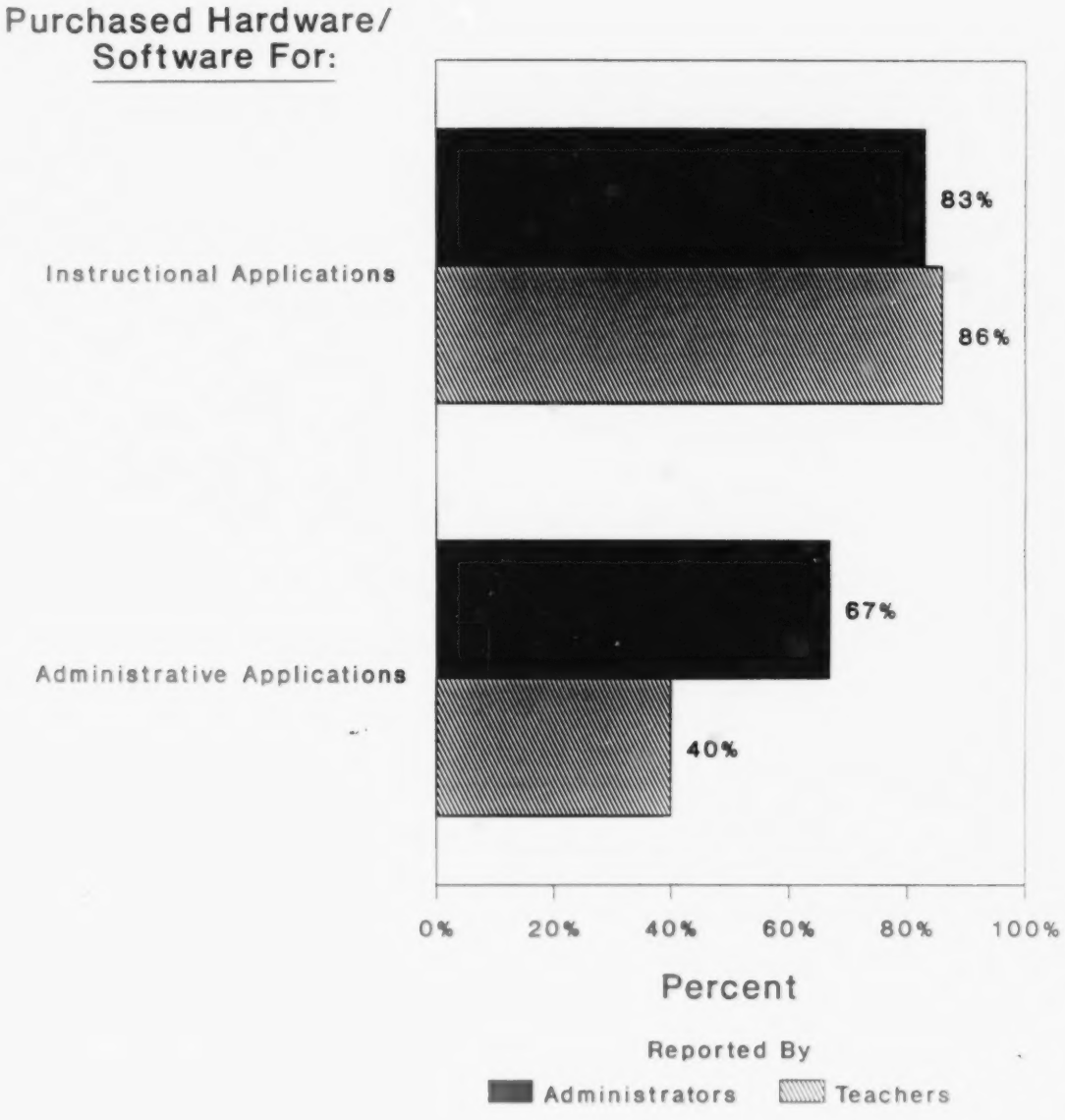


Exhibit 21
ADMINISTRATORS' USES OF COMPUTERS

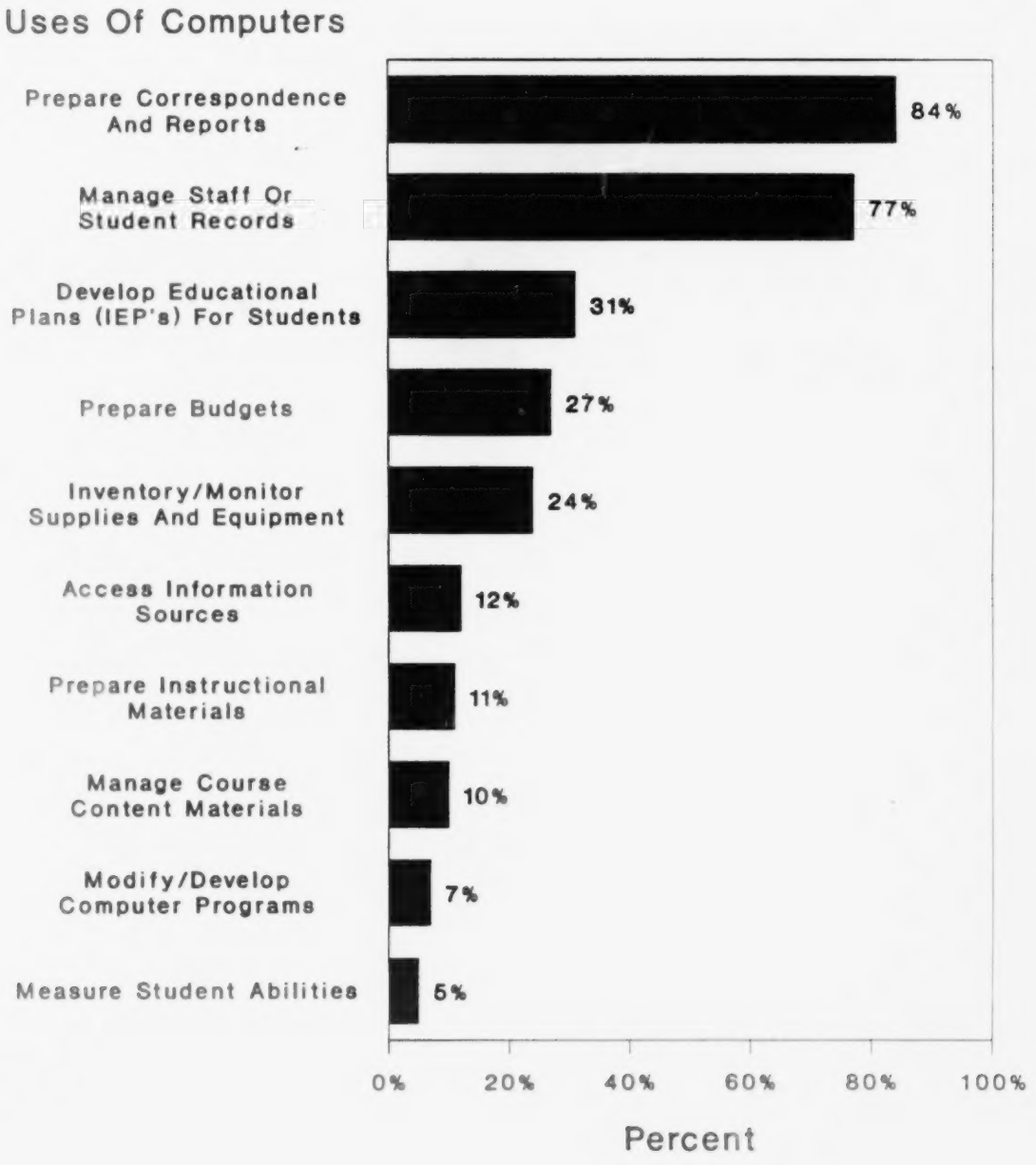
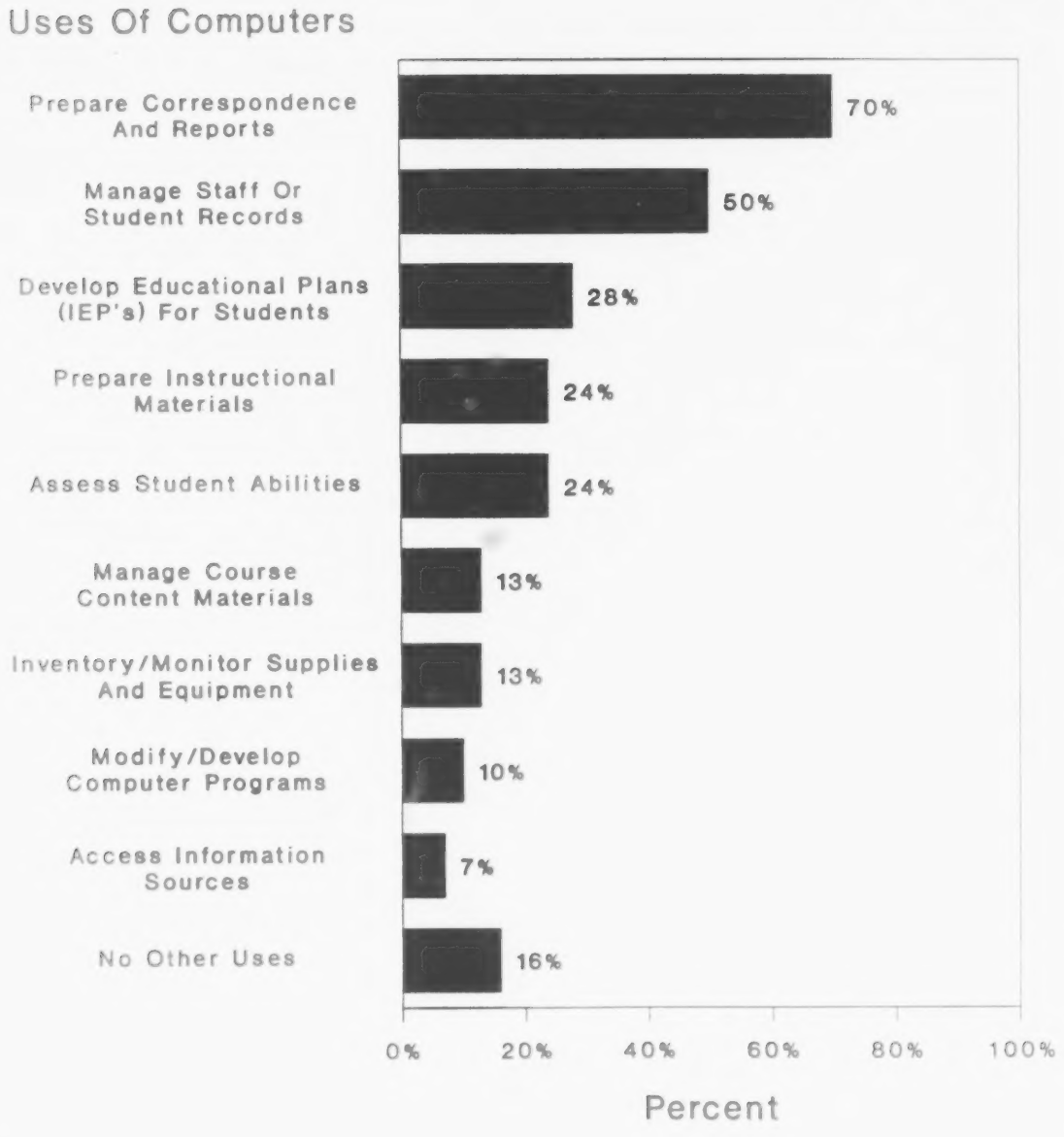


Exhibit 22
USES OF COMPUTERS BY TEACHERS OTHER THAN IN INSTRUCTION



CORRELATIONAL ANALYSIS

Although the primary purpose of this study was to describe the current level of participation by special education administrators in the overall process of technological innovation, project staff were interested in examining the data further to determine if higher levels of special education administration involvement were, in fact, associated with:

- higher levels of staff involvement
- increased availability of training and technical assistance
- increased availability of hardware and software, and ultimately
- higher levels of use by special education students.

It was decided that a correlational analysis might provide some insight into these relationships. An examination of the individual items indicated that eight composite variables representing relevant constructs could be derived from the survey instruments. These were:

- Special education administration participation in planning and decision making through individual activities: A general indicator of special education involvement in computer use in the district at the individual level. Derived from administrators' responses to ten questions on Survey 1, the range was 0 - 16.

- Special education administration participation in technology coordinating committees: A general indicator of special education administration involvement in computer use in the district through committee processes. Derived from administrators' responses to two questions on Survey 1, the range was from 0 - 15.

- Special education teacher participation in planning and decision making through individual activities: A general indicator of special education teacher involvement in computer use through individual activities. Derived from special education teachers' responses to three questions on Survey 2, the range was 0 - 5.

- Special education teacher participation in technology coordinating committees: A general indicator of special education teacher involvement in computer use in special education through committee processes. Derived from special education teachers' responses to two questions on Survey 2, the range was from 0 - 15.

- Availability and accessibility of computer-related training and technical assistance to special education teachers. Derived from administrators' responses to two questions on Survey 1 and special education teachers' and computer coordinators' responses to one question on Survey 2, the range was 0 - 38.

- Special education teacher participation in computer-related inservice training. Derived from special education teachers' responses to two questions on Survey 2, the range was from 0 - 11.

- Availability and accessibility of hardware and software to special education students and staff. Derived from two parallel questions which appeared on both Survey 1 and Survey 2, the range was 0 - 26.

- Use of instructional applications with special education students. Derived from special education teachers' and computer coordinators' responses to three questions on Survey 2 and administrators' responses to one question on Survey 1, the range was 0 - 22.

Based on the conceptual model of technology integration discussed previously, we were particularly interested in seeing if there was a statistically significant correlation between the two types of administrative involvement, individual and committee, and the material and human resources available to support the use of computers in special education. Furthermore, we were interested in ascertaining the degree to which actual use of computers in special education classrooms correlates with availability of material and human resources. To this end, correlations were run between the variables representing administrative

involvement and the variable representing level of student use, as well as between each of these and the other five variables described above.

The following results are Pearson correlation coefficients. We considered the correlation to be meaningful if the obtained correlation coefficient was significant at a level of .1 or less.

Relationship between Administrative Involvement and Student Use

A statistically significant correlation coefficient was obtained for special education administrators' *involvement with committees* and the actual use of instructional applications by special education students. This particular correlation, .46 significant at .02, was one of the strongest obtained, and would appear to lend support for the notion that the level of administrative involvement ultimately affects the level of student use. Interestingly, no correlation was found between administrative *involvement through individual activities* and level of student use.

This correlation was obtained using the combined responses from special education administrators, special education teachers, and computer coordinators as described above. It was the only correlation which was statistically significant when the responses of individuals in all roles were considered. However, because of the strength of this association, it seemed appropriate to look at the data again in an attempt to understand more clearly the nature of the relationships between our constructs. When responses for each group were analyzed, a number of significant correlations emerged.

Correlations Based on Responses of Special Education Administrators

Administrative involvement in both committee processes and through individual activities was found to be associated with the availability and accessibility of hardware and software to special education students and staff. The first correlation at .35 was significant at the .05 level, while the second at .20 was significant at the .07 level. This would seem to indicate that increased availability of material resources for special education may be associated with either type of special education administrative involvement.

Correlations Based on Responses of Computer Coordinators

Computer coordinators' involvement in the committee process was associated with increased availability of training and technical assistance, higher levels of participation in training programs, and increased availability of hardware and software. The last showed the strongest relationship with a correlation of .37, which was significant at .001. However, the availability of training and technical assistance was also associated with committee involvement of the computer coordinator, showing a correlation of .27 significant at .01. It is not surprising then to find that participation in training activities was also associated with this committee involvement, with a correlation coefficient of .22 which was significant at the .07 level.

Correlations Based on Responses of Special Education Teachers

Special education teachers' involvement in the committee process was also associated with level of participation in computer-related inservice training. These two constructs were associated with a correlation of .31, significant at the .007 level. Another relationship, with a direct bearing on student use, was found between the availability of training and technical assistance and student use. Here the correlation was .32, significant at the .004 level.

Chapter 4 – Discussion and Implications

Limitation of the Study

The sample of 100 districts is representative of public school systems in the United States; however, the analyses by district size were diminished by the sample size. It was determined that a difference on the order of .25 would have been necessary to show a statistically significant difference at the .1 level. This fact limits the extent to which these results could be generalized to other schools districts on the basis of size. Thus, the results by district size should be interpreted solely within the context of this study.

Summary of the Phase I Study and Implications

This study focused on examination of the current status of several factors believed to influence use of computers for instruction in school districts' special.education programs. Each factor is discussed in the following section:

- *The extent of administrative involvement in key decision making processes.* Administrative involvement in the decision making processes related to computers is high. Overall, 92 percent of administrators reported such involvement, although it is higher for hardware than software decisions.

- *The degree of communication between district and building administrators.* Involvement in committee processes, which was envisioned in this study as a particularly important communication mechanism, is reported by over half of the administrators, with two-thirds of that group reporting functions related to computer use in instruction. The committees are more likely to operate at the district level, however. Outside the committee process about two-thirds report working with other administrators at the district level and half work with other administrators at the building level.

- *The level of interaction between administrators and teachers.* The approximately one-third of teachers who report regular interaction between administrators and teachers, is much lower than that occurring between administrators. Generally, committee meetings are the main setting for administrator-teacher interaction.

- *The level of interaction between special and regular education programs.* Teachers in special education programs are sharing computer resources with regular education, but this is occurring more through informal mechanisms than any established district procedures. The interactions also extend to students in special and regular education, where over three-fourths of the teachers report joint use of computers.

- *The prevalence of training and technical assistance programs for educators.* Technical assistance for computers is reported available by about 90 percent of administrators and teachers. The computer coordinator is a formally established position in over half the districts. Half of the administrators report offering ten hours or less of computer training in their districts. However, over one-third of the teachers report attendance at computer training activities, and one-fifth report leading training activities. Incentives for participation in training are offered at about half of the districts.

- *The degree to which computers are used for administrative applications.* Two-thirds of the administrators report both purchase of computer technology for administrative purposes and regular use for professional purposes. Only 40 percent of teachers report purchase of hardware or software for administrative applications.

In comparison to past studies of administrative involvement in promoting computer use in special education, there clearly have been increases in each of the areas of focus in this study. Administrators are more actively promoting computer use through individual efforts such as commitments to increasing computer resources in special education, to ensuring special education representation in district-wide decision making processes, and to using computers in their administrative tasks.

The increases shown in the establishment and operation of formal committee structures point toward a promising trend for future growth of computer and other technology uses. As an important mechanism of improved communication related to planning, purchasing, and implementing computer resources, the committee process is both promoting collaboration among various types of administrators across a school district as well as fostering critical links between special and regular education.

While these are encouraging findings for increased use of computer technology in special education, there are areas that continue to need more attention. The increases in communication and collaboration are formalized predominantly at the district level and involve more administrative than other personnel. While the number of formal computer coordinator positions has greatly increased, these also are formalized more at the district level. There is more informal activity taking place at the building level than is indicated by administrators at the district level. School districts should be mindful that such a discrepancy between formal and informal events may pose

complications for future computer implementation and integration in instruction if staff members feel that the administrative or district level is out of touch with and not responsive to the needs and wants of the teaching or building level.

Another discrepancy appears in training, where administrators' involvement in planning and funding of inservice activities is not reflected in the amount of training available to staff or the amount of training attended. While it is possible that this is an area better examined over time, at the least, the topic should be addressed in open communication between administrators and teachers to work toward an improved balance between expectations or needs and actual training offered.

Increase in the operation of committees is a promising aspect for special education involvement in decision making processes. However, committee focus needs to move beyond decision making related to planning and purchasing computer resources to integrating computers into the curriculum and to assisting special education in expanding the uses for computers in the curriculum.

A similar concern holds true for technical assistance. Although it is widely available, technical assistance mainly concerns the mechanics of using hardware and software. Assistance with the use of computers in the curriculum is also necessary if computers are to be used for the maximum benefit of students with special needs.

Chapter 5 – Phase II Plans

The objectives for Phase II of this project are:

- To design and conduct in-depth case studies in three to five local educational agencies (LEA),
- To continue the regular review of relevant literature, and
- To develop and disseminate a *Guidebook for Special Education Administrators*.

Case Studies

The case studies being conducted in Phase II of this project are focused on identifying particular administrative features and practices that have promoted more successful computer implementation in local special education programs. School districts from five states, New Jersey, Maryland, Pennsylvania, Virginia, and West Virginia, have been identified as feasible locations to include in the case studies.

Results of the correlational analysis in Phase I are being used to identify three to four specific LEAs – two or three with high indicators and one district with moderate or low indicators of computer implementation. Survey items involved in the correlational analysis are those responses related to (a) special education administrator involvement with committees and the actual use of instructional applications by special education students, (b) special education administrator individual or committee involvement and availability and accessibility of hardware and software, and (c) special education teacher committee involvement and participation in inservice training. The special education administrator in each identified district will be asked to participate in the Phase II case studies, and any district requirements for conducting research studies will be completed.

A case study plan has been developed that focuses on the characteristics of exemplary practices identified in variables of the correlational analysis. The protocols being developed

specify the research questions and related propositions. The plan focuses on (a) validating and expanding upon material obtained in the Phase I surveys, (b) generating complete descriptions and specifications of the practices that might be replicable in other special education programs, and (c) identifying any materials that support and contribute to the effectiveness of the district practices. The three forms of data collection which will be implemented are semi-structured interviews guided by the case study protocols and research questions, direct observation, and review of relevant documents and materials.

A team of two researchers will conduct the case study in each of the selected districts. The on-site investigation requires that the researcher (a) obtain additional material about the site through telephone contacts with the special education director or designee prior to the visit, (b) spend approximately one week on site in each district, and (c) conduct limited follow-up telephone contacts to clarify information or request additional materials. While the special education administrator is the primary source of information, contacts are also planned with other staff members such as the computer coordinator, building level administrator, and special education teacher. The on-site studies always include direct observation of the practices and technology use in special education classrooms or other classrooms where special education students are taught. This process serves to verify and provide concrete examples of practices in use.

The analysis will focus on identifying specific practices, procedures, and materials that other districts may replicate. A number of steps will be conducted to foster validity, reliability, and accuracy of the findings:

1. The case study protocols are used to orient the researchers to each day's data collection. Information collected during interviews and observations is recorded in notebooks. The researchers review each day's interviews and observations to maintain consensus on the information collected and to plan any modifications or target areas for special attention during subsequent data collection visits.

2. After all site visits are completed the researchers review all the information and prepare a structured case study report that includes both narrative and anecdotal information as well as close-ended information on the key variables and research questions. During development of this report, if there is need for clarification or further information, the site person is contacted for information by phone.
3. A draft copy of the case study report is sent to the site person for review. This step conveys our interest in the perceptions and viewpoints of local school district personnel, assures them of our commitment to the accuracy of the information, and serves to verify and clarify the information for the validity of the research.
4. Following the local site reviews, any revisions that may have resulted are incorporated into preparation of the final case study report, which includes both within site studies and a synthesis of the results across sites.

Literature Review

The literature review is focusing on : (a) special education technology, and (b) administrative and organizational issues related to technology implementation. A systematic procedure has been developed to allow project staff to review and summarize articles from the following specific periodicals published during the period of Phase II: *Exceptional Children, Journal of Special Education Technology, Classroom Computer Learning, School Tech News,*

Information from the literature review serves as a contextual framework for the planned guidebook described below.

Guidebook

One of the primary goals of the project is development and dissemination of a *Guidebook for Special Education Administrators* to facilitate the adoption and effective use of technological innovations in special education. This book will be written in a clear and practical style and will

include concrete examples with sample materials of the practices that were found to be effective in the case studies. To the extent that general findings from the Phase I research are deemed meaningful and findings and recommendations from other studies reported in the literature are judged useful, they will be incorporated into the guidebook.

During the first half of Phase II, we will contact publishers with whom Macro has worked in the past to alert them to the development of this product and to secure their interest and guidance in publishing the guidebook. If a commercial publisher is interested in pursuing this material, we will prepare and submit draft copy according to the publisher's directions. If a noncommercial publisher or distributor is interested, we will use Macro's desktop publishing capabilities to produce a high quality camera-ready copy of the guidebook.

References

Barr, R., & Dreeben, R. (1983). *How Schools work.* Chicago: University of Chicago Press.

Beach, R., & Vacca A. (1985). Administrative variables and microcomputer implementation: A survey of high school principals. *Computers in the Schools, 2*(1), 31-46.

Becker, H.J. (1986). *Instructional Uses of School Computers.* (Issue No. 3). Baltimore, MD: The Johns Hopkins University, Center for Social Organization of Schools.

Cosden, M., Gerber, M., Semmel, D., Goldman, S., & Semmel, M. (1987). Microcomputer use within microeducational environments. *Exceptional Children, 53*(5), 399-409.

Ellis, E., & Saborine, E. (1986). Effective instruction with microcomputers: Promises, practices, and preliminary findings. *Focus on Exceptional Children,* 18(4), 1-16.

Goldman, S.R., Semmel, D.S., Cosden, M.A., Gerber, M.M., & Semmel, M.I. (1987). Special education administrators' policies on microcomputer acquisition, allocation, and access for mildly handicapped children: Interfaces with regular education. *Exceptional Children, 53*(4), 330-339.

Hall, G.E., & Loucks, S.F. (1978). Innovative Configurations: *Analyzing the Adaptation of Innovations.* The University of Texas at Austin: Research and Development Center for Teacher Education.

Hanley, T.V. (1988, January). Progress report on models for technology integration: Research and model development activities at the high school level. Paper presented at the *Third Annual Technology and Media Conference* sponsored by the Council for Exceptional Children, Baltimore.

Havelock, R.G. (1973). *The Change Agent's Guide to Innovation in Education.* Educational Technology Publications.

Hummel, J.W., & Steeve, J. (1988, January). Progress report on models for technology integration: The Johns Hopkins University project. Paper presented at the *Third Annual Technology and Media Conference* sponsored by the Council for Exception Children, Baltimore.

Jacobsen, J., & Bronson, R. (1987). Defining sociological concepts as variables for systems dynamics modeling. *System Dynamics Review, 3*(1), 1-7.

Okolo, C., Rieth, H., Polsgrove, L., Goh, S., Yerkes, K., & Bahr, C. (1987). *An analysis of mildly handicapped students' perceptions of computer based instruction.* (USED Grant No. G008530317). Nashville, TN: Peabody College of Vanderbilt University.

Rieth, H., Bahr, C., Polsgrove, L., Okolo, C., & Eckert, R. (1987). The effects of microcomputers on the secondary special education classroom ecology. *Journal of Special Education Technology, 8*(4), 36-45.

Rieth, H., Fuchs, L., Bahr, C., Kinzer, C., & Okolo, C. (1988, January). Analysis of microcomputer applications with mildly handicapped secondary school students. Paper presented at the *Third Annual Technology and Media Conference* sponsored by the Council for Exceptional Children, Baltimore.

Robertson, E.B., Ladewig, B.H., Strickland, M.P., & Boschung, M.D. (1987). Enhancement of self esteem through the use of computer assisted instruction. *Journal of Educational Research, 80*(5), 314-316.

Roblyer, M.D., Castine, W.H., & King, F.J. (1988). *The Effectiveness of Computer Applications for Instruction: A Review and Synthesis of Recent Research.* Haworth Press.

Thormann, J., Gersten, R., Moore, L., & Morvant, S., (1986). Microcomputers in special education classrooms: Themes from research and implications for practice. *Computers in the Schools, 3*(3-4), 97-109.

U.S. Congress, Office of Technology Assessment. (1988). *Power On! New Tools for Teaching and Learning* (OTA-SET-379). Washington, DC: U.S. Government Printing Office.

Zorfass, J., & Russell, S.J. (1988, January). Progress report on models for technology integration: The Education Development Center project. Paper presented at the *Third Annual Technology and Media Conference* sponsored by the Council for Exceptional Children, Baltimore.

Appendix A

Questions For Special Education Director (Survey 1)

National Center For Educational Statistics (NCES) Information

1 Record Number (1 - 17068)
1.1 _____

2 State Code (1 - 60)
2.1 _____

3 Agency Number (1 - 99999)
3.1 _____

4 Name Of Education Agency (30 characters)
4.1 _____ _____

5 Agency Type Code (1 - 2)
5.1 _____

6 Student Counts Total (0 - 999999)
6.1 _____

7 Student Counts Special Ed IEP (0 - 999999)
7.1 _____

8 Additional Information - Location By Region (1 - 4)
8.1 _____

Survey Information

9 Form Number (1=Spec Ed Dir, 2=Computer Coord 3=Spec Ed Teach)
9.1 _____

Special Education Director Information

10 Salutation (Mr., Ms., Mrs., Miss, Dr.)
10.1 _____

11 First Name
11.1 _____

12 Middle Initial
12.1 _____

13 Last Name
13.1 _____

14 Business Phone Number
14.1 _____

15 Date Of Interview
15.1 _____

16 Time Of Interview
16.1 _____

Questions For Special Education Director (Survey 1)

17 Some special education directors are responsible for more than one school district. How many school districts does your special education program serve?
17.1 _____ (number of districts)

18 How many special education students does your program serve?
18.1 _____

19 How many special education teachers (full-time equivalent) work with the special education students?
19.1 _____

20 Do you work with any of the following administrators on a regular basis to plan for and make decisions about computers and their use in the special education program?
20.1 District administrators
20.2 Building administrators
20.3 Other special education adminstrators
20.4 DK/Refused

21 Do you work with a committee on a regular basis to plan for and make decisions about computers and their use in the special education program?
21.1 Yes
21.2 No
21.3 DK/Refused

(If 21.2 or 21.3, skip to 26)

22 At what administrative level is this committee for computer use organized?
22.1 District
22.2 Building
22.3 Other
22.3.1 list _____
22.4 DK/Refused

23 How many times does the committee meet per school year?
23.1 _____

Questions For Special Education Director (Survey 1)

24 What are the functions for which the committee is responsible?
- 24.1 Set guidelines for evaluating hardware
- 24.2 Set guidelines for evaluating software
- 24.3 Acquire hardware
- 24.4 Acquire software
- 24.5 Allocate hardware
- 24.6 Allocate software
- 24.7 Evaluate computer use
- 24.8 Plan for computer use
- 24.9 Monitor computer use
- 24.10 Review computer use and needs
- 24.11 Obtain or provide computer in-service training
- 24.12 Set curriculum goals for computer use
- 24.13 Set instructional objectives for computer use
- 24.14 Provide technical assistance to computer users
- 24.15 Other
  - 24.15.1 list _____
- 24.16 DK/Refused

25 Does the committee that is responsible for planning computer use for special education include:
- 25.1 Regular education teachers
- 25.2 Regular education administrators
- 25.3 Special education teachers
- 25.4 Special education administrators
- 25.5 DK/Refused

26 Do you personally review or select the computer hardware that is purchased for the special education program?
- 26.1 Yes, review
- 26.2 Yes, select
- 26.3 No, neither
- 26.4 DK/Refused

27 Do you personally review or select software that is purchased for the special education program?
- 27.1 Yes, review
- 27.2 Yes, select
- 27.3 No, neither
- 27.4 DK/Refused

28 Do you participate in the decisions about where or how computer resources for the special education program are distributed?
- 28.1 Yes
- 28.2 No
- 28.3 DK/Refused

Questions For Special Education Director (Survey 1)

29 Have you purchased computers or software for special education **administrative applications** using funds appropriated for the special education program?
- 29.1 Yes, computers
- 29.2 Yes, software
- 29.3 No, none of above
- 29.4 DK/Refused

30 Have you purchased computers or software for special education **instructional applications** using funds appropriated for the special education program?
- 30.1 Yes, computers
- 30.2 Yes, software
- 30.3 No, none of the above
- 30.4 DK/Refused

31 Do you provide funds for staff-development activities for computer use?
- 31.1 Yes
- 31.2 No
- 31.3 DK/Refused

32 Are you involved in planning for staff-development activities for computer use in the special education program?
- 32.1 Yes
- 32.2 No
- 32.3 DK/Refused

33 Do you provide release time for special education staff to attend training activities for computer use?
- 33.1 Yes
- 33.2 No
- 33.3 DK/Refused

34 Do you provide incentives for special education staff to attend training activities for computer use?
- 34.1 Tuition reimbursement
- 34.2 Special recognition
- 34.3 Computer equipment
- 34.4 Higher pay
- 34.5 Advancement
- 34.6 Other
  - 34.6.1 please specify _____
- 34.7 No, none are provided
- 34.8 DK/Refused

Questions For Special Education Director (Survey 1)

35 Are there formal mechanisms for special and regular educators to communicate among themselves about computers?
- 35.1 Electronic bulletin board (at district level)
- 35.2 Electronic bulletin board (1 or more at building level)
- 35.3 Newsletter
- 35.4 Meetings
- 35.5 Team Teaching
- 35.6 Task Force
- 35.7 Other
  - 35.7.1 specify _____
- 35.8 None
- 35.9 DK/Refused

(If not (35.1 or 35.2), skip to 37)

36 Do special education staff use the electronic bulletin board?
- 36.1 Yes
- 36.2 No
- 36.3 DK/Refused

37 Are there computers available for use by special education students?
- 37.1 Yes
- 37.2 No
- 37.3 DK/Refused

(If 37.2 or 37.3, then 41)

38 Where are the computers located that are used by special education students?
- 38.1 Special education classrooms
- 38.2 Computer labs
- 38.3 Library
- 38.4 Regular classrooms
- 38.5 Media center
- 38.6 Other
  - 38.6.1 list _____
- 38.7 DK/Refused

39 Are there libraries of software available to special education staff?
- 39.1 Yes
- 39.2 No
- 39.3 DK/Refused

(If 39.2 or 39.3, skip to 41)

Questions For Special Education Director (Survey 1)

40 Where are these libraries located?
- 40.1 Special education classrooms
- 40.2 Computer labs
- 40.3 Library
- 40.4 Regular classrooms
- 40.5 Media center
- 40.6 District office
- 40.7 Other
  - 40.7.1 list _____
- 40.8 DK/Refused

41 How many staff-development training activities related to computers **and** special education have you attended this school year?
41.1 _____

42 Please estimate the average number of hours of computer training that will have been made available to each teacher by the end of this school year.
42.1 _____

43 Who is responsible for planning staff-development training activities for the special education program?
43.1 (title only) _____

44 Is technical assistance for computers available to the special education staff?
- 44.1 Yes
- 44.2 No
- 44.3 DK/Refused

(If 44.2 or 44.3, skip to 50)

45 I would like to learn more about your technical assistance program. I will read a list of possible elements of that program, please indicate which of the following are available in your district.

- 45.1 Provide software
- 45.2 Identify useful software
- 45.3 Demonstrate software
- 45.4 Evaluate software
- 45.5 Program or modify software
- 45.6 Distribute software catalogs
- 45.7 Schedule use of computer equipment
- 45.8 Install or maintain computer equipment
- 45.9 Integrate computers into the curriculum
- 45.10 Other
  - 45.10.1 list _____
- 45.11 DK/Refused

Questions For Special Education Director (Survey 1)

46 Who provides technical assistance for computers in your district?
46.1 specify title _____

47 Is this a formal position?
47.1 Yes
47.2 No
47.3 DK/Refused

(If 47.2 or 47.3, skip to 49)

48 At what administrative level is this position?
48.1 District
48.2 Building
48.3 DK/Refused

(Skip to 50)

49 If not a formal position, at what administrative level is this position?
49.1 District
49.2 Building
49.3 DK/Refused

50 Do you use computers regularly for professional purposes?
50.1 Yes
50.2 No
50.3 DK/Refused

(If 50.2 or 50.3, skip to 52)

51 For what purposes do you use computer applications?
51.1 To prepare print-based instructional materials.
51.2 To prepare correspondence and reports
51.3 To manage staff records or student records
51.4 To manage course content materials
51.5 To develop educational plans (IEPs) for students
51.6 To access information sources
51.7 To inventory or monitor supplies, materials, equipment or services
51.8 To modify or develop computer programs
51.9 To measure student abilities
51.10 Other
51.10.1 list _____
51.11 DK/Refused

52 Considering the special education staff in your district, please estimate the percentage who use computers for instruction with their students.
52.1 _____ (to nearest percent, e.g., 35, 72)

Questions For Special Education Director (Survey 1)

53 Could you give me the name of the Computer Coordinator in your district?
53.1 Name _____

54 Could you give me the phone number of the Computer Coordinator in your district?
54.1 Phone _____

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

National Center For Educational Statistics (NCES) Information

1 Record Number (1 - 17068)
1.1 _____

2 State Code (1 - 60)
2.1 _____

3 Agency Number (1 - 99999)
3.1 _____

4 Name Of Education Agency (30 characters)
4.1 _____

5 Agency Type Code (1 - 2)
5.1 _____

6 Student Counts Total (0 - 999999)
6.1 _____

7 Student Counts Special Ed IEP (0 - 999999)
7.1 _____

8 Additional Information - Location By Region (1 - 4)
8.1 _____

Survey Information

9 Role Number (1=Spec Ed Dir, 2=Computer Coord 3=Spec Ed Teach)
9.1 _____

Computer Coordinator/Special Ed Teacher Information

10 Salutation (Mr., Ms., Mrs., Miss, Dr.)
10.1 _____

11 First Name
11.1 _____

12 Middle Initial
12.1 _____

13 Last Name
13.1 _____

14 Business Phone Number
14.1 _____

15 Date Of Interview
15.1 _____

16 Time Of Interview
16.1 _____

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

17 What is your official title?
17.1 _____

18 What grade(s) or group do you work with?
18.1 K
18.2 1
18.3 2
18.4 3
18.5 4
18.6 5
18.7 6
18.8 7
18.9 8
18.10 9
18.11 10
18.12 11
18.13 12
18.14 Teachers
18.15 DK/Refused

19 How many schools do you work with?
19.1 _____

20 Do you work with any of the following administrators on a regular basis to plan for and make decisions about computers and their use in the special education program?
20.1 District administrators
20.2 Building administrators
20.3 Other special education adminstrators
20.4 No
20.5 DK/Refused

21 Do you work with a committee on a regular basis to plan for and make decisions about computers and their use in the special education program?
21.1 Yes
21.2 No
21.3 DK/Refused

(If 21.2 or 21.3, skip to 26)

22 At what administrative level is this committee for computer use organized?
22.1 District
22.2 Building
22.3 Other
22.3.1 list _____
22.4 DK/Refused

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

23 How many times does the committee meet per school year?
23.1 _____

24 What are the functions for which the committee is responsible?
24.1 Set guidelines for evaluating hardware
24.2 Set guidelines for evaluating software
24.3 Acquire hardware
24.4 Acquire software
24.5 Allocate hardware
24.6 Allocate software
24.7 Evaluate computer use
24.8 Plan for computer use
24.9 Monitor computer use
24.10 Review computer use and needs
24.11 Obtain or provide computer in-service training
24.12 Set curriculum goals for computer use
24.13 Set instructional objectives for computer use
24.14 Provide technical assistance to computer users
24.15 Other
24.15.1 list _____
24.16 DK/Refused

25 Does the committee that is responsible for planning computer use for special education include:
25.1 Regular education teachers
25.2 Regular education administrators
25.3 Special education teachers
25.4 Special education administrators
25.5 DK/Refused

26 Are there computers available for use by special education students?
26.1 Yes
26.2 No
26.3 DK/Refused

(If 26.2 or 26.3, skip to 45)

27 Do you personally review or select the computer **hardware** that is purchased for your use in the special education program?
27.1 Yes, review
27.2 Yes, select
27.3 No, neither
27.4 DK/Refused

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

28 Do you personally review or select the computer **software** that is purchased for your use in the special education program?
- 28.1 Yes, review
- 28.2 Yes, select
- 28.3 No, neither
- 28.4 DK/Refused

29 Do you participate in the decisions about where or how computer resources for the special education program are distributed?
- 29.1 Yes
- 29.2 No
- 29.3 DK/Refused

30 Have you purchased computers or software for special education **administrative applications** using funds appropriated for the special education program?
- 30.1 Yes, computers
- 30.2 Yes, software
- 30.3 No, none of above
- 30.4 DK/Refused

31 Have you purchased computers or software for special education **instructional applications** using funds appropriated for the special education program?
- 31.1 Yes, computers
- 31.2 Yes, software
- 31.3 No, none of the above
- 31.4 DK/Refused

32 Is instructional software used in the special education program?
- 32.1 Yes
- 32.2 No
- 32.3 DK/Refused

(If 32.2 or 32.3, skip to 36)

33 What type of instructional software is used in the special education program?
- 33.1 Drill/practice
- 33.2 Tutorial
- 33.3 Games
- 33.4 Simulation
- 33.5 Word processing
- 33.6 Other
  - 33.6.1 please specify _____
- 33.7 DK/Refused

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

34 What grade levels use instructional software?
- 34.1 K
- 34.2 1
- 34.3 2
- 34.4 3
- 34.5 4
- 34.6 5
- 34.7 6
- 34.8 7
- 34.9 8
- 34.10 9
- 34.11 10
- 34.12 11
- 34.13 12
- 34.14 DK/Refused

35 For what subject areas is instructional software used?
- 35.1 Mathematics
- 35.2 Science
- 35.3 Language Arts
- 35.4 Social Studies
- 35.5 Foreign Languages
- 35.6 Fine Arts
- 35.7 Other
  - 35.7.1 please specify _____
- 35.8 DK/Refused

36 Are there formal mechanisms for special and regular educators to communicate among themselves about computers?
- 36.1 Electronic bulletin board (at district level)
- 36.2 Electronic bulletin board (1 or more at building level)
- 36.3 Newsletter
- 36.4 Meetings
- 36.5 Team Teaching
- 36.6 Task Force
- 36.7 Other
  - 36.7.1 specify _____
- 36.8 None
- 36.9 DK/Refused

(If not (36.1 or 36.2), skip to 38)

37 Do special education staff use the electronic bulletin board?
- 37.1 Yes
- 37.2 No
- 37.3 DK/Refused

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

38 Do special and regular education teachers share computer resources?
- 38.1 Yes, hardware
- 38.2 Yes, software
- 38.3 Yes, other
  - 38.3.1 specify _____
- 38.4 No, not at all
- 38.5 DK/Refused

39 Do special education and regular education students use computers together?
- 39.1 Yes, together in regular education classes
- 39.2 Yes, together in computer lab
- 39.3 Yes, together in media center/library
- 39.4 Yes, together in another location
  - 39.4.1 list _____
- 39.5 No
- 39.6 DK/Refused

(If 39.5 or 39.6, skip to 41)

40 Please estimate the number of times per month that special education students and regular students use computers together.
- 40.1 On a daily basis
- 40.2 Less than daily but more than once a week
- 40.3 Weekly
- 40.4 Less than weekly but more than once a month
- 40.5 Monthly
- 40.6 Less than monthly
- 40.7 DK/Refused

41 Approximately how many computers in each district are available for special education students?
- 41.1 _____

42 Where are the computers located that are used by special education students?
- 42.1 Special education classrooms
- 42.2 Computer labs
- 42.3 Library
- 42.4 Regular classrooms
- 42.5 Media center
- 42.6 Other
  - 42.6.1 list _____
- 42.7 DK/Refused

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

43 Are there libraries of software available to special education staff?
- 43.1 Yes
- 43.2 No
- 43.3 DK/Refused

(If 43.2 or 43.3, skip to 45)

44 Where are these libraries located?
- 44.1 Special education classrooms
- 44.2 Computer labs
- 44.3 Library
- 44.4 Regular classrooms
- 44.5 Media center
- 44.6 District office
- 44.7 Other
  - 44.7.1 list _____
- 44.8 DK/Refused

45 How many staff-development training activities related to computers **and** of potential benefit to the special education program have you **attended** this school year?
- 45.1 _____

46 How many staff-development training activities related to computers **and** of potential benefit to the special education program have you **led** this school year?
- 46.1 _____

47 Do you receive incentives to attend training activities for computer use?
- 47.1 Tuition reimbursement
- 47.2 Special recognition
- 47.3 Computer equipment
- 47.4 Higher pay
- 47.5 Advancement
- 47.6 Other
  - 47.6.1 please specify _____
- 47.7 No, none are provided
- 47.8 DK/Refused

48 Is technical assistance for computers available to the special education staff?
- 48.1 Yes
- 48.2 No
- 48.3 DK/Refused

(If 48.2 or 48.3, skip to 54)

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

49 I would like to learn more about your technical assistance program. I will read a list of possible elements of that program, please indicate which of the following are available in your district.
- 49.1 Provide software
- 49.2 Identify useful software
- 49.3 Demonstrate software
- 49.4 Evaluate software
- 49.5 Program or modify software
- 49.6 Distribute software catalogs
- 49.7 Schedule use of computer equipment
- 49.8 Install or maintain computer equipment
- 49.9 Integrate computers into the curriculum
- 49.10 Other
  - 49.10.1 list _____
- 49.11 DK/Refused

50 Who provides technical assistance for computers in your district?
- 50.1 specify title _____

51 Is this a formal position?
- 51.1 Yes
- 51.2 No
- 51.3 DK/Refused

(If 51.2 or 51.3, skip to 53)

52 At what administrative level is this position?
- 52.1 District
- 52.2 Building
- 52.3 DK/Refused

(Skip to 54)

53 If not a formal position, at what administrative level is this position?
- 53.1 District
- 53.2 Building
- 53.3 DK/Refused

54 Do you use computers regularly for special education instructional purposes?
- 54.1 Yes
- 54.2 No
- 54.3 DK/Refused

(If 54.2 or 54.3, skip to 56)

Questions For Computer Coordinator/Special Ed Teacher (Survey 2)

55 For what purposes do you use computers for special education instruction?
- 55.1 Present new instructional material
- 55.2 Allow practice with current instructional material
- 55.3 Provide simulations linked to course material
- 55.4 Develop/improve student writing/composition skills
- 55.5 Reward students
- 55.6 Expose students to the subject of computers
- 55.7 Develop student skill in using computers to solve problems
- 55.8 Develop student skill in creating or modifying computers
- 55.9 Allow student to communicate electronically or access information
- 55.10 DK/Refused

56 For what other purposes do you use computers?
- 56.1 Prepare print-based instructional materials.
- 56.2 Prepare correspondence and reports
- 56.3 Manage staff records or student records
- 56.4 Manage course content materials
- 56.5 Develop educational plans (IEPs) for students
- 56.6 Access information sources
- 56.7 Inventory or monitor supplies, materials, equipment or services
- 56.8 Modify or develop computer programs
- 56.9 Assess student abilities
- 56.10 Other
  - 56.10.1 list _____
- 56.11 DK/Refused